CNS Spectrums

www.cambridge.org/cns

Guidelines

Cite this article: Weisæth L (2021). Psychosocial intervention models and outcomes after a terror disaster. *CNS Spectrums* **26**(1), 92–100.
https://doi.org/10.1017/S1092852920002163

Received: 13 August 2020
Accepted: 26 November 2020

Key words:
terror; political violence; PTSD; intervention models

Author for correspondence:
*Lars Weisæth,
Email: lars.weisath@medisin.uio.no

CAMBRIDGE UNIVERSITY PRESS

Psychosocial intervention models and outcomes after a terror disaster

Lars Weisæth*

Division of Mental Health and Addiction, Institute of Clinical Medicine, University of Oslo, Oslo, Norway

Abstract

On July 22, 2011, a car bomb blast in the government quarter in Oslo killed 8, injured 209 of the 350 employees who were at work, and destroyed 1700 of the 3500 work places in the ministries. Shortly afterward, the terrorist killed 69 adolescents and young adults and injured another 110 of the 495 survivors at a summer camp on an island outside Oslo, organized by the Youth League of the ruling Labor Party. The paper describes the two disaster models that were applied in providing the preventive and therapeutic psychosocial interventions: the company/organization model for the governmental employees and a combined community and organization model for the victims of the massacre and their families. Some of the findings from the longitudinal research and outreach programs that were conducted are reported.

Introduction

Natural and man-made disasters affect millions of people worldwide, and the numbers are increasing due both to rising population density and numbers of disasters.[1,2] Climate-related disasters have more than doubled since the 1980s and terrorist events even more.[3,4] Disasters such as the ongoing COVID-19 pandemic have the potential for global reach, and the decades to come will decide whether the accelerating climate changes also will cause disasters worldwide. These events emphasize the need for global disaster planning and for concerted action by all nations, a scenario that seems like a dream today.

Since the mid-1970s, our group in Oslo has been conducting prospective controlled longitudinal studies of several large-scale accidents and disasters of various kinds. We found that for psychiatry, the definition proposed by Kinston and Rosser in 1974 as "an event with massive collective stress exposures" could serve as a workable definition for when to mobilize.[5] This general descriptive definition encompasses many types of direct and indirect stress exposures that accompany a catastrophic event. It has been useful and practical and contributed to making disaster psychiatry an integral part of disaster medicine. Our first studies were on survivors of workplace disasters with their unexposed coworkers as controls. Later on, we also investigated disastrous events that struck children and families, bereavement, and how stress exposure affects rescue personnel and other groups of disaster workers, such as identification teams.[6,7]

The main finding from our disaster studies was that the majority of adults and children exposed to potentially traumatic events are rather resilient. Previous disaster experience or training turned out to be a strong protective factor securing adaptive behavioral response during the disaster impact and preventing posttraumatic psychopathology such as PTSD.

Some of our findings from these studies on people who survived a brief disaster impact that are relevant for this presentation can be summarized like so: a few percentages we term *"resisters"* do not show or report any stress responses at all.

A high proportion, about 40%–50%, later termed "*the resilient*" by Bonanno,[8] react with posttraumatic stress reactions of various degrees and duration but retain their capacity to function at work and in their daily life. Generally, they spontaneously and gradually regain their mental health balance within days or a few weeks. Sometimes, simple therapeutic interventions or improvements of their recovery environment are necessary.

About 20%–25% who develop clinical threshold levels of posttraumatic stress reactions qualify for a diagnosis of PTSD lasting months but respond to treatment. Sometimes, comorbid disorders can develop, such as, other anxiety disorders, depressive symptoms, and substance abuse. Within a period of 1–2 years post disaster, they have returned to normal. This process has been termed *"recovery"* among Bonino's categories of trajectories.

Finally, a significant minority develop enduring, sometimes, treatment-resistant, severe posttraumatic stress psychopathology, *"the chronic"* pattern. Premorbid mental health vulnerabilities, severe disaster exposure, and lack of any improvement the first 6 months post disaster characterize this group.

The trajectory referred to as "*delayed stress response/delayed dysfunction*" by Bonanno,[8] a course in which the psychic injury appears after a true symptom-free latency period of considerable duration, was familiar to us from previous studies of Norwegian concentration

camp survivors and allied WWII merchant convoy sailors[9,10] but not seen among survivors of these brief stress exposures. However, a retrospective research design that had failed to register early stress reactions could mistakenly have identified such a course.[11]

The short- and long-term outcome can be predicted with satisfactory sensitivity and specificity based upon the severity of stress response during the early postdisaster phase because it reflects both the degree of the disaster exposure and the premorbid mental health of the individual.

The five high-risk factors in the complete disaster trauma are physical injury, threat to life, witnessing injuries and death, attack on one's integrity, and loss of loved ones. Experiencing double trauma, that is, severe threat to own life and loss of close ones, may cause PTSD and a prolonged grief reaction among a high proportion of the subjects in the study.

From the start, our research on the psychosocial effects of disaster had been combined with outreach efforts and various types of early interventions and was developed over the years. At the time of the terror attacks in 2011, the content of the psychosocial support provided in the intervention models followed the international guidelines rested upon the five essential elements described by Hobfoll et al. in 2007.[12,13] These are promoting: (1) a sense of safety, (2) calming, (3) a sense of self- and community efficacy, (4) connectedness, and (5) hope.

We had, in addition, learnt to emphasize the importance of information.

The research projects on the mental health aspects of the two terror attacks have resulted in many publications.[14] In the following, I will describe and discuss the criteria that were applied after the terror disaster in deciding which model to implement in providing the psychosocial services for the victims. Some of the psychiatric after-effects of the terror attacks will also be reported.

The Terror Attacks

Two sequential terrorist attacks occurred in Norway on July 22, 2011, perpetrated by a lone individual motivated by political dissent for the ruling government party and, in particular, its immigration policy. The attacks were unique in both extent of injury and death and the intentional targeting of children.

A car bomb blast shattered government buildings in downtown Oslo, killing 8 people and injuring 209 of the 350 employees who were in or close to the buildings. The explosion would have likely caused far greater harm if the terrorist had not been delayed by 1 hour. The bomb explosion resulted in destruction of four of the five ministry buildings, work equipment and infrastructure, along with 1700 workplaces of the total 3500 in the 14 ministries located in the governmental quarter.

Over the next 2 hours, the terrorist made his way to a summer camp on an island outside Oslo organized by the Youth League of the ruling Labor Party. He killed 69 people, nearly all adolescents and young adults, and injured another 110 individuals of the 495 survivors. One-third of the parents had telephone contact with their son or daughter during the massacre and thereby became helpless bystanders to the atrocities.

Objective and Background

My background for dealing with this topic was that on behalf of the Norwegian Centre for Violence and Traumatic Stress Studies, I acted as advisor to the Directorate of Health and the Ministry of Health and also as a member of a group of mental health professionals, on what measures should be taken and what services should be offered to the various groups that had been affected by the terror attacks. From the day of the attacks, I conducted lengthy interviews with individuals who were willing to share with me what they had experienced during the bomb explosion or the massacre and how it was affecting them. The information-support centers rapidly established at the two disaster sites in accordance with contingency plan and operating for several days gave opportunity to meet with their families of survivors and bereaved families.[15] The center near the island received more than 1000 persons, including a variety of disaster workers. Information from the police officers who caught the terrorist, the officers who identified the dead, the volunteer boat rescuers who saved many from the massacre, the emergency medical teams and my colleagues in the mental health teams supplemented the picture. This gave a basis for proposing and discussing with the health authorities how the many and multifaceted needs of those affected could be met. During the following days and weeks, I participated in the implementation of the preventive interventions offered that we previously had documented effect of, such as visiting the sites of deaths for the bereaved families[16] and re-exposures to the disaster area for the survivors.[17] During the following year, I was attached to the government's Occupational Health Service (OHS) which was reinforced with a specialist in occupational medicine, and myself in order to serve the 3500 employees in the ministries. We assisted and supervised the implementation of the company model for primary and secondary preventive health interventions. We also conducted a training course for all the ministry leaders on the mental health effects of terror, especially on work capacity. We stressed how leadership and a cohesive work environment could be supportive.

We helped to start prospective research projects on the short- and long-term consequences among the employees.

The Immediate and Acute Aftermath

After the arrest of the terrorist on the island, it was suspected that he had accomplices and that prolonged the need for security measures.

That the numbers of people who had been in the two disaster areas at time of the attacks were unknown, and that the hospitals were reluctant to inform about the identity of their admitted patients, made for an uncertainty about missing persons that lasted until the next day.

An information-support center is a structure that has been experienced as crucial for creating the necessary order near a disaster area.[18,19] While a national call service for families to report about missing persons had not yet come into action, the information-support center managed to handle that function. Failure to provide a call service and an information-support center invites chaos; the risk population will not be clearly identified, and the next-of-kins will converge on the disaster area if they are not guaranteed a place to stay where they will be the first to know what has happened to their loved ones.

The response in the families of the victims was unsurprisingly dominated by information searching and behavior reflecting their strong need to be reunited with the exposed family member. The information-support center at a hotel close to the island became the evacuation center for the survivors of the massacre and received 100s of family members. Comrades of the killed youngsters and police identification experts could provide information about the

https://doi.org/10.1017/S1092852920002163 Published online by Cambridge University Press

deaths if wanted by the families. Rescue and medical personnel could inform about the search and rescue.

As more information became available unspeakable scenes of grief and relief unfolded there. Over the following hours and days, the painful and demanding process of working through what had happened could begin.

Organizing Principles in the Intervention Models

It will come as no surprise that one organizational principle in any model for psychosocial intervention for disaster victims is that of securing connectedness and support from their next-of-kins. The critical question then is *how were the families exposed to the disaster?* In this respect, it was clear that the two attacks had directly exposed only single members of families. The victim families were primarily indirectly affected and demonstrated early on their strong motivation to support their exposed family member.

It was also immediately clear that the participants at the Youth League summer camp came from all over the country, but it took some time before we were assured that no single community had lost a substantial number of youngsters, in which case, a community disaster model would be implemented. It was eventually established that the 69 killed and the 495 survivors came from most of Norway's 426 municipalities.

For the employees in the ministries, we could expect that their families lived in the Oslo area.

The second question we had learnt to ask was *Are the disaster victims strongly attached to the same social system?* It was obvious that both of the disaster stricken populations could be seen as belonging to large social systems, as governmental employees in the ministries and as members of the Youth League of the Labor Party.

One of the important assets of a social system is that it is a source of many kinds of support. However, it could be questioned whether the ministry work place, respectively, the Youth League would be acceptable sources of support for the victims since it was that very affiliation that had made them targets for the attacks. The need to avoid activities and situations reminiscent of the trauma as part of the posttraumatic stress syndrome undoubtedly many would experience, could also become a hindrance. The early observations, however, showed consistently that their needs for still being attached to these social systems far outweighed any ambivalence they might have, probably for a variety of reasons, among them the strengthened group cohesion from having survived together the life-threatening situation.

Social support is closely tied to the three middle stages in Maslow's hierarchy of needs: Security/safety and need for protection; social belonging; and feelings of accomplishments/self-esteem. After experiencing a terror attack, these needs have usually increased, and the social system they are affiliated with has to meet these requirements. Social support is multifaceted; among its elements are protection and care, to value the person and offer a cohesive network with mutual rights and duties, to give access to information and provide emotional, confirmative, and instrumental support. In working with collective approaches after disasters, we had learnt that most of the persons had clear opinions about how to use their social support systems. For example, they were selective in who they were willing to share the details of their harrowing trauma experience with; many would spare their close ones for that. Since the terror attack had been experienced together with work colleagues and league comrades, their social systems also were available arenas that invited for sharing and working through that traumatizing event, important forms of emotional and informational supports.

Support from one's family always has a role to play, also when their family member has suffered a severe stressful exposure as a member of another primary group, such as a military team or a close knit group of employees or comrades. For a bereaved person, nothing can replace a family when it comes to grief and mourning.

The two populations shared also other important traits: Both had been attacked because they were—or were close to—the nation's leading political decision-makers, the planned targets for the two attacks. It was a characteristic of these terror attacks that both the violence and the message from the terrorist had the same target, individuals representing the Norwegian nation. It made it obvious that this was an attack on the nation itself. The study of the reactions in the entire population later confirmed this: Nearly 90% reported sadness, half had cried, 40% told of anger, while few experienced the fear that the terrorist had wanted to instill.[20] In fact, skepticism toward strangers decreased and trust in institutions increased after the incident.[21] We expected that both groups of terror victims would be more aware and knowledgeable than the average person about the defining and important difference between political violence and other types of criminal violence: The attack on the nation made them participants in an important fight for basic democratic values, in addition to being innocent victims of violence. Tragic experiences that are meaningless may shatter the sufferer's views about life. The participant role is likely to turn the event and the suffering into meaningful experiences and elicits respect and many kinds of support from the entire national population. The disaster-exposed individuals could accordingly be expected to show resilience and strong motivation in coping with the various consequences of the terror attacks, including the health effects.

We observed early on that the victims of both attacks and their families expected the active outreach to be continued also as follow-ups, that they should be contacted and offered help. This reflected the severity of how affected they were by the terror experience and was probably also an effect of the inviting and outreach character of the help they had received at the information-support centers. There were few expressions of criticism about the failure of the police to stop the terrorist before he reached the island. Neither did they feel that it was unjust that they had become the victims of the violence, which had the leading politicians and the government as its intended targets.

There was no fear of the stigma that is often associated with mental health problems and may weaken help-seeking behavior.

Would Watchful Waiting be an Adequate Model?

The guidelines from the National Institute for Clinical Excellence (NICE) raise important questions as to how proactive to be in trying to identify individuals with PTSD following traumatic events.[22]

"Watchful waiting" is a concept adjusted from earlier ways of supporting victims following potentially traumatic events that were too intrusive such as "psychological debriefing." The emphasis should be on "watchful," which means that one should not be too active with interventions in individuals who seem to cope rather well in the acute phase but follow them up closely.

In the initial phase, the NICE guidelines recommend practical help, accurate and timely information, and other services like those

https://doi.org/10.1017/S1092852920002163 Published online by Cambridge University Press

that had been offered at the information-support centers. The guidelines recommend initial watchful waiting when posttraumatic stress symptoms are mild and have been present for less than 4 weeks. Resources then should be focused on raising awareness. This would involve the provision of information to those affected and their families. Watchful waiting also include education of those most likely to be confronted by individuals with symptoms, such as general practitioners and employers, and activities that we already had initiated.

For individuals with a high risk of developing PTSD following a major disaster, the NICE guidelines state that considerations should be given by those responsible for coordination of the disaster plan to the routine use of a brief screening instrument for PTSD at 1 month after the disaster. With the high prevalences of posttraumatic psychopathology that we predicted among those who had suffered double trauma, that is, been directly exposed to severe life threat and witnessed multiple deaths, as many of the youngsters had during the island massacre, we considered that a proactive outreach program with early screening and a more comprehensive personal examinations was indicated.

Disaster Intervention Models and Specific Services

Until the 2011 terror attacks, Norway had only experienced terror acts that affected few people. The magnitude of the two directly exposed populations and the many more indirectly affected required strategies and capacities from disaster intervention models.

While the somatic part of the disaster medical mobilization has the physical injuries as its organizing principle regardless of the type of disaster, as mentioned, the psychiatric approach demands that social factors are considered. In that context, for example, transport disasters may not be what they appear to be: When in 1989 an aircrash killed all 55 people on board, and we learnt that all the 50 passengers were employees in the same shipping company, we moved our information-support centers from the airport to the headquarters of the shipping company and the airline. The company model for psychosocial interventions was chosen. A bus accident was handled as a large-scale local community accident when it appeared that all the passengers, many children, and adults who lost their lives as well as the survivors came from the same place.

What kind of model would be adequate for the victims of the terror attacks? Over the years, we had found that the types of large-scale accidents and disasters that affected our citizens could be classified into the three categories described below.

Would any of these models or combinations of them be fitting, or was there a need to develop a different model for the victims of the terror attacks?

Work place disasters

These destructive events are geographically limited, and only single members of families are affected. The company/organization model we developed and first applied after an industrial disaster in 1976 made the affected organization serve as the base for mobilizing social support, psychological intervention, and health care.[23] Since then, the model had gradually been developed further into a health, milieu, and security model based on research and experiences from large-scale accidents and disasters that struck various types of enterprises, such as military forces, chemical and metallurgical industry, energy, and shipping companies.

Disasters that strike people who are far away from their families and homes

Victims may be single persons or part of or the whole nuclear family. These events have been transport disasters such as airplane crashes, train and motor vehicle accidents, passenger shipwrecks, ferry and hotel fires, and workplaces such as ships and offshore oilrigs. We learnt that the families of the victims felt an urgent need to go to the disaster area, and in order to provide the services they desired, we developed the concept and structure of the information-support center. The term reflects the fact that before information about the fate of next-of-kin is available, most people are not receptive to offers of psychological support. After return to their home communities, further help may be needed and can be provided by their general practitioners or the psychiatric services.

When large numbers of our citizens have been exposed to disasters while staying or travelling abroad, such as the 1000s of Norwegian citizens exposed to the tsunami in Southeast Asia in 2004, they may have received little assistance and need and expect help upon homecoming.[24] To meet these requirements, an individual health screening procedure was conducted at the receiving airports and referrals made when required. It was decided to implement an active outreach program for the follow-up. This meant that the Registered General Practitioner contacted the persons among his listed patients that he was informed had been exposed to the disaster. In all, 1531 general practitioners were involved in this proactive program. Since this was the first time such a procedure was used, some practical difficulties had to be overcome, but both parties reported the outreach as positive experiences.

Local community disaster

Because such events have not caused mass deaths in recent times, our experience is limited to events that have been less extreme, and mobilization of the municipality crisis team has been sufficient for the regular health services to handle the situation.

Historically in Norway, tsunamis caused by mountains sliding into fjords have killed a high proportion of the exposed populations in affected communities. Today cracks in high-risk mountains are monitored, and warnings for evacuation may be given.

We have been involved in tertiary prevention on the survivors and have observed second-generation effects in a local community where half of the adult male population were killed, and the entire place totally eradicated by terror during WW II. No trace should be left of the community. For the returning inhabitants after the war, the multiple losses and many broken bonds posted a threat to individual identity and the loss of familiar neighborhood to their place identity. This community was the only of the many destroyed places in Norway that was not modernized after the war; every one of the 500 buildings was rebuilt exactly as it had been, a restoration that also seems to have restored place identity and prevented the loss of communality described by Erikson.[25]

Available Knowledge About Similar Disasters

When it came to available knowledge that could predict the short- and long-term psychiatric consequences of the two attacks, and the need for early preventive interventions, the situation differed very much.

The massacre had all the five aspects that constitute a complete disaster trauma: physical injuries, severe threats to life, terrible

https://doi.org/10.1017/S1092852920002163 Published online by Cambridge University Press

witness experiences, attacks on integrity, and multiple losses of comrades. Each of these are significant risk factors for psychological injuries such as posttraumatic stress syndromes and prolonged grief disorder, and the more of these factors, the greater is the risk of developing severe psychopathology.[26] The massacre had no parallel known to us, at least not in the western world in times of peace. Other extreme events like mass school shootings indicated that the risk to mental health both among the survivors and the bereaved families was very significant.[4]

In contrast, many studies have been published on work place terrorism.[27,28] Additionally, with the exception that it was accidental, the industrial explosion that I had studied the effects of from 1976 to 1980 also had low mortality, many narrow escapes from death, many indirectly exposed workers, had destroyed 100s of work places, and disrupted the work environment for a long time and thus was quite comparable to the bomb explosion and its consequences in the governmental quarter.[23] Furthermore, in both these disasters, the employees were guaranteed continuous employment and that they would not suffer any economic losses. If the disaster had caused mass loss of jobs and unemployment, the sociological definition of a disaster as the total destruction of a large social system might have been in place.

In one respect, the recovery of work health was observed to be more difficult for the governmental employees: Their office work was more demanding in terms of cognitive functions than the manual work was for the industrial workers, thus the disturbance of concentration and memory that accompanies the posttraumatic stress syndrome caused more problems.

It was apparent that the trajectories of the posttraumatic stress effects among the industrial workers could be used to define high-, medium-, and low-risk groups among the 350 ministry employees directly exposed and the 3500 indirectly exposed to the bomb explosion and serve as indicators for the kinds of early interventions that the various groups of employees should be offered.

Choice of Intervention Model for the Government Employees and Some of the Outcomes

From the very beginning, the company/organization model was a strong candidate for use in the government quarter.

The officials from the Directorate and Ministry of Health we discussed with had no hesitation in taking on the responsibility for the health of the many employees and to be accountable for the results of the recommended measures. Their confidence as health professionals made them differ from leaders of disaster stricken enterprises we had met earlier in that they did not immediately accept our proposal but asked a series of critical questions, mostly concerning the capacity and competence of the OHS in relation to the heavy demands it would have to cope with in the time to come. For us, it was a sound challenge to have to defend the model of our choice.

The conclusion was that the company/organization company was to be implemented and that the staff of the OHS would be strengthened. A description of how the work was carried through has been published.[29]

Terrorism is the most extreme form of workplace violence. When the physical or mental health of the employees has been harmed by a terror attack on their work place, it is obviously a natural response of the employer to accept responsibility, to take on ownership of the situation.

There is emerging literature also on the importance of the organization as a whole when it comes to dealing both with acute and chronic stress.[30,31] According to the findings, sometimes-organizational factors, such as management, structure, communication, demands, sense of control, support from leaders and colleagues, as well as sense of justice and safety climate, are more strongly related to mental health than individual vulnerability.

The employer is by law responsible for the health, security, and the work environment of the employees. The company model requires that the workplace has available resources to assist in the planning, response, and recovery phase of disasters. It is our experience that the most important factors for the health outcomes are in fact measures that are primarily not directed at the health of the employees but more related to the crisis situation of the entire organization. This was also found in this case: The employees emphasized as most important how the situation had been handled by their leaders and colleagues and of being a part of a work environment. After the comparable work place disaster mentioned the employees reported that early return to work and being together with colleagues who had experienced the disaster impact, were the most helpful measures.[23] Among the advantages of working within the OHS of an enterprise is that it gives an opportunity to advise the various leaders within the company on matters of importance for prevention, treatment, and rehabilitation of disaster-related health problems. In our experience, leaders have a tendency to underestimate how important leadership is for their employees in critical situations and to be unaware of the potential and the value of the psychosocial support that their organization can contribute. The leader becomes the center for media attention and his ability to practice both practical and emotional leadership, such as expressing grief on behalf of all affected, has turned out to be important for them and decisive for the public image of the enterprise.

The company model is consistent with the principles for crisis management in Norway: Those responsible in the day-to-day situation should also have the responsibility in times of crisis. The daily organization shall be utilized during crisis which shall be handled at the lowest level of care. With regard to health, the final principle, collaboration/interaction between all involved parties, is respected in the company model in that it is realized through a joint effort by the company's OHS, its management, unions, safety/security and personnel departments, and its liaising with the local general practitioners and specialist medical services. The company model is an alternative to the primary and secondary public health services and requires that the employer takes on the responsibility and is accountable for the results. The responsibility has given the company's occupational health service access to human and financial resources that are outside the reach of the regular health services. One example was the support that an employee received during his critical and long-lasting treatment for 80% burn injuries he has sustained in an explosion at a Norsk Hydro factory: The continuous presence of a work mate in the burn unit was to communicate his value as a human being, his importance for his co-workers and the company, and to maintain his identity as a company employee. The cost amounted to one million NOK. He survived, recovered, and returned to his work place.

Although the OHS is a first line of preventive health care service, it is actually a specialty health service since it is usually lead by a specialist in occupational medicine.

Our previous experiences with the model were positive and results had been satisfactory in terms of its efficacy, effectiveness, and efficiency. On one occasion when it had not been applied, seamen exposed to a disastrous ferry fire, the mental health outcomes were very poor—especially their occupational health. In contrast, the company model had helped to maintain a work

https://doi.org/10.1017/S1092852920002163 Published online by Cambridge University Press

capacity and reduce sick leave and disability of employees suffering from physical injuries or posttraumatic stress reactions, for example, by adapting the job to their health problems.

Having survived life, a life-threatening event together strengthens group cohesion. Belonging to a group provides an arena for talking, sharing, and working through the traumatizing experience with close persons who have the special competence of knowing what it was like. This possibility probably saved many families for harrowing tales.

Other advantages of the company model is the better chance to enhance social network support, to practice psychoeducation, perform early interventions, simpler treatments, and utilize work as a form of treatment. There is increasing evidence that workplace health promotion programs can change behavior and reduce risk factors for individual employees and the collective risk profile of the employee population.[32] After the 9/11 terror attacks, many more accessed health information and sought counselling at work rather than from other providers.[33]

Some of the advantages in using the OHS in a company model after workplace disaster summarized:

- Preventive health service present on site;
- Includes all staff and known by all employees;
- Familiar with the organization and all levels in company;
- Competence in occupational health challenges in company;
- Lowest cost-effective care level;
- In a position to work through the leaders of the company and the unions;
- Utilize the collected resources of the organization;
- Authority to implement preventive, therapeutic, and rehabilitative measures;
- Continuous and rapid feedback to responsible leaders;
- Secure continuity of care;
- Integral part of disaster and accident preparedness of the company;
- Learning from the disaster into the organization.

Of the 350 who had been present at work when the bomb exploded, 82% agreed to undergo a comprehensive personal examination shortly after the terror attack. Prospective survey data from all ministry employees were collected 10, 22, and 34 months post disaster. The results on the psychiatric consequences replicated exactly the findings made in the study of the industrial workers exposed to a similar explosion in 1976. Among the directly exposed symptom defined, PTSD was six- to eightfold more prevalent (23%, 17%, and 17%) than among the indirectly exposed (4%, 3%, and 2%).[34] These findings support the demand that the diagnosis of PTSD requires direct exposure to a stressful event or situation of an exceptionally threatening or catastrophic nature and that indirect exposure is not severe enough. Whereas all the clusters within the PTSD symptomatology were associated with impairment in function among the directly exposed, only emotional numbing was associated with impairment within the indirectly exposed group.[35] Due to the large numbers of indirectly exposed employees, even with their low risk of developing long-lasting posttraumatic stress reactions, they made up more cases than the directly exposed. This is in accordance with Geoffrey Rose's axiom in preventive medicine: "a large number of people exposed to a small risk may generate more cases than a small number exposed to a high risk."[36] The findings illustrate that postdisaster health care should be planned for large groups. The risk factors for this retrospective perception of high life threat among the indirectly exposed were proximity to the scene of the terror, having close colleagues that were injured, material damages to one's office, and the loss of personal property.[37] It is well known that recalled threat intensity may increase with time, and that such recall amplification may hinder recovery from posttraumatic stress.[38]

One limitation of the OHS in helping employees in whom the work place incident place a lesser role for their posttraumatic stress problems is that they provide more of information about their work-related health matters to the OHS than to their family doctors, while the latter get more information about the family situation.

In all, 53% of the 3500 employees utilized the OHS during the first year after the terror attack, indicating a high effectiveness of the company model.

Compared to the period prior to the attack, sick leave increased the first year after the attack for both women and men that were directly exposed to the event. Sick leave stabilized to the initial level 3 years after the incident. For indirectly exposed employees, that is, those who were not present at the site of the attack, there was no significant increase in sick leave from before to after the attack.[39] Direct exposure was associated with higher sickness absence rates if control over work pace was low. Role conflict, support from co-workers, and superior showed evidence of moderating effects of exposure on sickness absence. It is concluded that that psychosocial working conditions seem to moderate effects of exposure to workplace terrorism on sick leave absence.[40]

The concept "centrality of event" refers to the degree to which an event is construed as central to a person's identity, forming a reference point in one's life story, and for attribution of new life experiences. It was found that higher degrees of event centrality are related to higher levels of posttraumatic stress, a finding that may have some interesting implications for prevention and treatment of posttraumatic stress symptoms.[41]

A pre- and postdisaster study of leadership showed that the employees with high levels of posttraumatic stress perceived their immediate leader to be less supportive. However, overall perceptions of leadership were remarkably stable, which suggests that the effects of critical incidents on perceptions of leadership may be negligible.[42]

Recovery was explored in a clinical subsample to determine the extent to which social support contributed over time. In the study of various sources of support, a linear latent growth curve of psychological distress with general social support from friends and family, colleague support, and leader support as predictors was examined. High levels of general social support and leader support were independently associated with a more rapid decline in psychological distress over time. It was concluded that general social support, as well as support from a leader in one's working life, may facilitate recovery from psychological distress after exposure to a traumatic event.[43] However, the ministry employees were not motivated for the type of close co-worker support termed "colleague/comrade support," which we tried to introduce, and which had been welcomed by police, rescue and military personnel, and become an integral part of their stress management. Probably, the need for the sense of physical security that such close support fosters was not felt pressing enough in their daily work in offices, even after such a severe terror experience.

The Intervention Model for the Survivors of the Massacre and Some Outcomes

The Youth League of the Labor Party obviously lacked some of the resources that a company/organization model would require, such as a health service. Its members lived far apart and all over the country, met only occasionally, and their membership in the

https://doi.org/10.1017/S1092852920002163 Published online by Cambridge University Press

League was temporary. In spite of these limitations, it was obvious from the start that the membership in the Youth League offered opportunities to harvest some of the benefits that only the company/organization model could provide. It was therefore implemented as a supplement to the community model, which was chosen to be the main provider of the services. As an addition to the local mental health service, a combined longitudinal research and outreach program conducted by mental health professionals with special competence in child and youth psychiatry visited the home communities and the youths over the next 3 years. The program was administered by the Directorate of Health.

The large majority of the survivors were adolescents or young adults and still dependent on their parents, and education and friends were other central elements of their lives. Many of the parents had been bystanders to the massacre, and it was to be expected that a high proportion would suffer from posttraumatic stress symptoms. The parents had not been able to protect their children and were suffering from trauma-related guilt. It was apparent that this failure had strongly activated the motivational system of being a protective shield for their child and strengthened the need to take care of their child. Overprotection and control could become problems particularly if the child's regression reciprocated the dependency. The posttraumatic stress problems among the survivors would be demanding for their parents and siblings. The Child and Adolescent Section at our center agreed that because of such indications for preventive and therapeutic interventions, it was important to have a family-oriented approach, and such help could only be secured and administered in the home communities. The local health services were trained in general for handling such needs, although a high competence in dealing with traumatic stress and especially terror-related stress could of course not be expected. The outreach program that came about included training of the local health professionals in traumatic stress.

It was concluded that each of the youngsters should be offered a contact person in the home community as a resource and to serve as a facilitator in the youth's relation to the education system, health and social services, the labor market, and so on. Various kinds of professionals served as contact persons, and a very high proportion of the youth made use of their contact persons. An alternative choice of contact persons would have been the general practitioners as each citizen is registered as a patient of a general practitioner of his own choice, and many still needed follow-up treatment for their shot wounds.

The social importance of the school makes it an arena for psychological first aid.[44] The school can be seen as a parallel to the work place for adult employees and the importance of early return to work as well. As for the challenges in work capacity mentioned for office jobs in the government quarter, we expected that the emotional and cognitive disturbances of the posttraumatic stress syndromes would cause similar functional impairments in their schoolwork. The longitudinal studies of the school functioning in the survivors found that it took 2 years before their grades were back to their level before the disaster.[45]

In addition to the information and other services, the survivors and their families and the bereaved families received during their stay at the information—support center, they took part in ceremonies, activities, and services that were offered to them by the Labor Party and its Youth League. Having had similar traumatic experiences made them share with each other and contributed to the creation of a kind of collective identity. The parents initiated the organization of a self-help association open for all affected by the disaster. We had encouraged disaster-affected groups to organize themselves previously as well. We have seen advantages of supplementing the professional mental health services with the perspective of the users of the services. The support organization provides psychosocial support, takes care of legal and economic matters, has a voice in discussing memorials, etc., and has turned out to be a most useful communication channel for information from the disaster affected to the national authorities as well as an effective channel of information from the authorities to the members of the association. The association received substantial financial support from the government. It played an important role in planning and conducting the visits to the island for the survivors and to the sites of death for the bereaved families.

The association established after the terror attacks was for several years a platform that in collaboration with the Youth League and mental health personnel regularly arranged meetings that covered themes of common interest. These support activities after the terror disaster can be seen as the practice of a company/organization model.

The longitudinal investigation of the health and well-being of survivors and their parents conducted interviews at 4, 14, and 32 months and was coordinated with an outreach program. At the first follow-up, the level of stress reactions among the youngsters was six times higher than among youth who had not been directly exposed to the terror attacks.[46] Having sustained shot injuries increased the level of posttraumatic stress reactions. It was found that the level of anxiety/depression elevation in the parents was three times higher, and posttraumatic stress scores five times higher than that of the general population. Parental distress and guilt about their child's traumatic experience contributed uniquely to symptoms. It was concluded that intervention strategies following trauma should include both survivors and their parents.[47]

Prolonged grief disorder was found in 75% of the bereaved parents and 83% of the siblings 18 months after the terror attacks, often with comorbid posttraumatic stress symptoms.[48] A parent who did not share feelings of grief with the spouse had stronger reactions. For the majority, the visits to the sites of death were important in processing their loss. Three key themes emerged as to what as they considered important with the visit: Seeing the actual place of death, seeking actual information, and learning to know the island.[49,50]

It came as a surprise that the prevalence of prolonged grief disorders among close friends of the killed youths was nearly as high as among the parents and the siblings.[51] The finding indicated that when it comes to defining who should be considered at risk among the bereaved, close friends of the deceased ought to be included.

The Inventory of Complicated Grief (ICG) that was used in these studies may, however, have produced too high prevalences. One item on the ICG states "I feel I cannot accept the death of the person who died," another item states "I feel bitter over this person's death."[52] Affirmative answers to the two items would increase the score and indicate a complicated grief process. After a death caused by a terror attack, and not by natural causes, however, agreeing with the statements can be interpreted rather as normal responses. That these items were not excluded in the grief studies probably resulted in too high scores. Additionally, the ICG scale does not enquire about guilt and will therefore not be suitable for uncovering survivor guilt or guilt of the kind that the parents suffered from.

Concluding Comment

The July 22 Commission delivered its report 1 year after the terror attacks. The disaster medical services, including the mental health services, got favorable reviews for the way they had responded.[53]

https://doi.org/10.1017/S1092852920002163 Published online by Cambridge University Press

The evaluation by another independent commission, which also had international experts on traumatic stress, was positive in its review of how the mental health challenges had been handled.[54]

The main and most important theme of this paper is that societal organizing of psychosocial support following major disasters has to take into account factors such as who the victims are, if they belong to a common organization, and the location of the disaster in order to be sufficient. This may perhaps lead to the possibility of more optimally organized and prepared societies and organizations for future disastrous events, also in developed countries other than Norway.

Disclosure. Dr. Weisæth has nothing to disclose.

References

1. Goldmann E, Galea S. Mental health consequences of disasters. *Annu Rev Public Health*. 2014;**35**:169–183.
2. Ursano RJ, Fullerton CS, Weisæth L, Raphael B. *Textbook of Disaster Psychiatry*. Cambridge: Cambridge University Press; 2017.
3. Credcrunch 38, What is the human cost of natural disasters? (1994–2013). Issue No. 38. Centre for Research on the Epidemiology of Disasters. http://www.cred.be/publications. March 2015.
4. Lowe SR, Galea S. The mental health consequences of mass shooting. *Trauma Violence Abuse*. 2015;**16**:1–21.
5. Kinston W, Rosser R. Disaster: effects on mental and physical states. *J Psychosom Res*. 1974;**18**(6):437–456.
6. Raphael B, Lundin T, Weisæth L. A research method for the study of psychological and psychiatric aspects of disaster. *Acta Psychiatr Scand Suppl*. 1989:**80**(S353);1–75.
7. Malt UF, Weisæth L. Traumatic stress. Empirical studies from Norway. *Acta Psychiatr Scand Suppl*. 1989;**80**(355):137
8. Bonanno GA. Loss, trauma, and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events? *Am. Psychol*. 2004;**59**:20–28.
9. Eitinger L, Strøm A. *Mortality and Morbidity After Excessive Stress: A Follow-Up Investigation of Norwegian Concentration Camp Survivors*. Oslo: Universitetsforlaget; 1973.
10. Askevold F. War sailor syndrome. *Psychother Psychosom*. 1976;**27**(3–6): 133–138.
11. Joshi S, Cerdá M. Trajectories of Health Resilience and Illness. I. In: Ursano RJ, Fullerton CS, Weisaeth L, Raphael B, eds. *Textbook of Disaster Psychiatry*. Cambridge: Cambridge University Press; 2017:76–86.
12. Hobfoll SE, Watson P, Bell CC, *et al.* Five essential elements of immediate and mid-term mass trauma intervention: empirical evidence. *Psychiatry*. 2007;**70**(4):283–315; discussion 316–369.
13. Weisæth L, Dyb G, Heir T. Disaster medicine and mental health. Who, how, when for international and national disasters. *Psychiatry*. 2007;**70**(4): 337–344. ISSN: 0033–2747.
14. Dyb G, Jensen T, Glad KA, Nygaard E, Thoresen S. (2014). Early outreach to survivors of the shootings in Norway on the 22nd of July 2011. Norwegian Centre for Violence and Traumatic Stress Studies. http://www.nkvts.no/english/topic/disasters/t.
15. Weisæth L. Preventing after-effects of disaster trauma: the information—support centre. *Prehosp Disaster Med*. 2003;**19**(1):86–89.
16. Kristensen P, Tønnessen A, Weisæth L, Heir T. Visiting the site of death: experiences of the bereaved after the 2004 Southeast Asian tsunami. *Death Stud*. 2012;**36**:462–476.
17. Heir T, Weisæth L. Back to where it happened: self-reported symptom improvement of tsunami survivors who returned to the disaster area. *Prehosp Disaster Med*. 2006;**21**:59–63.
18. Seynaeve GJR, ed. *Psycho-Social Support in Situations of Mass Emergency*. European Policy Paper concerning different aspects of psychosocial support involved in major accidents and disasters. Brussles, Belgium: Ministry of Public Health; 2001. ISBN: D/2001/9387/1.
19. Smeets EC, de Ruijter AM. *Community-Based Interventions Working Draft*. Amsterdam: Impact Dutch knowledge and advice centre for post-disaster psychosocial care; 2006.
20. Thoresen S, Aakvaag HF, Wentzel-Larsen T, Dyb G, Hjemdal OK. The day Norway cried. Proximity and distress in Norwegian citizens following the 22nd July 2011 terrorist attacks in Oslo and Utøya Island. *Eur J Psychotraumatol*. 2012;**3**:19709. doi:10.3402/ejpt.v3i0.19709.
21. Wollebæk D, Enjolras B, Steen-Johnsen K, Ødegård G. After Utøya: How a high trust society reacts to terror—trust and civic engagement in the aftermath of July 22. *Polit Sci Polit*. 2012;**45**(1):32–37.
22. National Institute for Clinical Excellence. *Post-Traumatic Stress Disorder. The Management of PTSD in Adults and Children in Primary and Secondary Care*. London: Royal College of Psychiatrists; 2005.
23. Weisæth L. Stress Reactions to an Industrial Disaster. An Investigation of Disaster Behavior and Acute Post-Traumatic Stress Reactions, and a Prospective, Controlled, Clinical and Interventive Study of Sub-Acute and Long-Term Post-Traumatic Stress Reactions [Dr. thesis]. Oslo: University of Oslo; 1984.
24. Hussain A, Weisæth L, Heir T. Psychiatric disorders and functional impairment among disaster victims after exposure to a natural disaster: a population based study. *J Affect Disord*. 2011;**128**(1–2):135–141. doi: 10.1016/j.jad.2010.06.018.
25. Erikson KT. *Everything in its Path: Destruction of Community in the Buffalo Creek Flood*. New York: Simon and Schuster; 1976.
26. Norris FH. Impact of mass shooting on survivors, families and communities. *PTSD Res Q*. 2007;**18**(3):1–8.
27. Morganstein JC, Ursano RJ, Fullerton CS, Holloway HC. Terrorism and weapons of mass destruction. In Ursano RJ, Fullerton CS, Weisæth L, Raphael B, eds. *Textbook of Disaster Psychiatry*. Cambridge University Press; 2017:193–212.
28. Grieger TA, Fullerton CS, Ursano RJ. Posttraumatic stress disorder, depression, and perceived safewety 13 months after September 11. *Psychiatr Serv*. 2004;**55**:1061–1063.
29. Weisæth L, Heir T. Workplace and organizational disasters. Response and planning. In Ursano RJ, Fullerton CS, Weisæth L, Raphael B, *eds. Disaster Psychiatry*. Cambridge: Cambridge University Press; 2017:261–269.
30. Burke KJ. Well-being in protective services personnel: Organizational influences. *Australas J Disaster Trauma Stud*. Massey University. 2006 - 2.
31. Petrie K, Gayed A, Bryan BT, *et al.* The importance of manager support for the mental health and wellbeing of ambulance personnel. *PLoS ONE*. 2018; **13**(5):e0197802. doi:10.1371/journal.pone.0197802.
32. Institute of Medicine. *The Future of Public's Health in the 21st Century*. Washington, DC: National Academic Press; 2003.
33. Stein BD, Elliott MN, Jaycox LH, *et al.* A national longitudinal study of the psychological consequences of the September 11, 2001 terrorist attacks: reactions, impairment, and help-seeking. *Psychiatry*. 2004;**67**:105–117.
34. Hansen MB, Skogstad M, Nissen A, Blix I, Solberg Ø, Heir T. Prevalence and course of symptom-defined PTSD in individuals directly or indirectly exposed to terror: a longitudinal study. *Psychiatry*. 2017;**80**:171–183.
35. Solberg Ø, Blix I, Heir T. The aftermath of terrorism: posttraumatic stress and functional impairment after the 2011 Oslo bombing. *Front Psychol*. 2015;**6**:1156.
36. Rose G. *The Strategy of Preventive Medicine*. Oxford, UK: Oxford University Press; 1992.
37. Heir T, Blix I, Knatten CK. Thinking that one's life was in danger: perceived life threat in individuals directly or indirectly exposed to terror. *Br J Psychiatry*. 2016;**209**:306–310. doi:10.1192/bjp.bp. 115.170167.
38. Heir T, Piatigorsky A, Weisæth L. Longitudinal changes in recalled perceived life threat after a natural disaster. *Br J Psychiatry*. 2009;**194**:510–514.
39. Hansen M, Bang Hansen M, Berthelsen M, Nissen A, Heir T. Sick leave before and after a work-place targeted terror attack. *Int Arch Occup Environ Health*. 2019;**92**:327–335. doi:10.1007/s00420-018-1390-8.
40. Berthelsen M, Hansen MB, Nissen A, Nielsen MB, Knardahl S, Heir T. Effects of exposure to workplace terrorism on subsequent doctor certified sickness absence, and the modifying role of psychological and social work factors: a combined survey and register study. *BMC Public Health*. 2020;**20** (1):367. doi:10.1186/s12889-020-08465-3.

41. Blix I, Birkeland MS, Solberg Ø, Hansen MB, Heir T. The launching and ensnaring effects of construing event as central to one's identity and life story. *Appl Cogn Psychol*. 2016;**30**:526–531.
42. Birkeland MS, Nielsen MB, Bang Hansen M, Knardahl S, Heir T. The impact of a workplace terrorist attack on employees' perceptions of leadership: a longitudinal study from pre to postdisaster. *Leadersh Q*. 2017;**28**:659–671.
43. Birkeland MS, Nielsen MB, Hansen M, Knardahl S, Heir T. Like a bridge over troubled water? A longitudinal study of general social support, colleague support, and leader support as recovery factors after a traumatic event. *Eur J Psychotraumatol*. 2017;**8**(1):1302692. doi:10.1080/20008198.2017.1302692.
44. Brymer M, Jacobs A, Layne C, *et al. Prolonged First Aid: Field Operations Guide*. 2nd ed. . Los Angeles, CA: National Child Traumatic Stress Network & National Center for PTSD; 2006.
45. Stene LE, Schults J-H, Dyb G. Returning to school after a terror attack: a longitudinal study of school functioning in survivors of the Utøya shootings in 2011. *Eur J Psychotraumatol*. 2018;**7**:31359. 1–11. doi:10.3402/ejpt.v7.31359.
46. Dyb G, Jensen TK, Nygaard E, *et al.* Post-traumatic stress reactions in survivors of the 2011 massacre on Utøya island, Norway. *Br J Psychiatry*. 2014;**204**:361–367. doi:10.1192/bjp.bp.113.133157.
47. Thoresen S, Jensen TK, Wentzel-Larsen T, Dyb G. Parents of terror victims. A longitudinal study of mental health following the 2011 terrorist attack on Utøya island. *J Anxiety Disord*. 2016;**38**:47–54.
48. Dyregrov K, Dyregrov A, Kristensen P. Traumatic bereavement after terror: the psychosocial impact on parents and siblings 1.5 years after the July 2011 terror killings in Norway. *J Loss Trauma*. 2015;**20**(6):556–576.
49. Kristensen P, Dyregrov K, Dyregrov A. Can visiting the site of death be beneficial for bereaved families after terror? A qualitative study of parents' and siblings' experiences of visiting Utøya Island after the 2011 Norway terror attack. *Eur J Psychotraumatol*. 2018;**8**:1463795. doi: 10.1080/20008198.2018.1463795.
50. Kristensen P, Dyregrov A, Weisæth L, *et al.* Optimizing visits to the site of death for bereaved families: after disasters and terrorist events. *Disaster Med Health Preparedness*. 2018;**12**:523–527. doi:10.1017/dmp.2017.94.
51. Johnsen I, Dyregrov K. "Only a friend". The bereavement process of young adults after the loss of a close friend in an extreme terror incident—a qualitative approach. *Omega (Westport)*. 2016;**74**(1):16–34.
52. Prigerson HG, Maciejewski PK, Reynolds CF, *et al.* Inventory of complicated grief: a scale to measure maladaptive symptoms of loss. *Psychiatry Res*. 1995;**59**:65–79.
53. Norway's Public Reports. Report 14, report from the July 22 Commission. 2012.
54. Englund L, Michel PO, Riddez L, Ortenwall P. The Bomb Attack in Oslo and the Shootings at Utøya, 2011. KAMEDO report 97. Sweden: Swedish National Board of Health and Welfare; 2012.