

Acting at a disaster site: views expressed by Swedish nursing students

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Accepted for publication 10 August 1992

SUSERUD B.-O (1993) *Journal of Advanced Nursing* 18, 613–620

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There is a common interest in Swedish society in preparing nurses well for disasters. A special course in the basic nurse education programme is devoted to disaster nursing. The aim of this study is to investigate nursing students' knowledge and views of their own action at the disaster site, both in their professional role and as private persons. The present study is a descriptive one based on the students' written answers. The result shows that the students emphasize contacting the overall disaster officer, surveying the situation and carrying out basic life-saving measures in Sweden known as the ABCs. They also stress the importance of staying calm and, to a lesser extent, seeing to the needs of the mentally shocked. Thus the nursing students seem to regard treatment of physical injuries as most important in the disaster situation.

INTRODUCTION

Try to imagine the following situation:

On Sunday 3 March at 9 10 a.m. a Boeing 747 jumbo jet crashes in central Borås, Sweden. The aircraft carries 350 passengers of different nationalities. The air temperature is about 0°C and it is foggy. An explosion in the rear part of the plane has made it lose altitude continually after take-off from Landvetter airport outside Gothenburg. The pilot tries to manoeuvre away from populated areas but fails. The aircraft hits the ground south-west of the general hospital and large parts of it as well as adjacent residential areas within a circle of about a kilometre are affected. Parts of the wrecked plane are spread over a wide area because of the heavy explosion. A large number of casualties must be expected. At the disaster site there are survivors with various injuries of the type caused at a major air crash

The above scenario was the starting point for questions to nursing students regarding major accident or disaster procedure. This raises questions such as: How do student nurses view their own actions on arriving at the disaster

site as nurses in a medical team? How do they view their own actions if arriving at the disaster site as private persons? Answers to these questions were of central interest in the evaluation of knowledge about nursing disaster victims, conducted at the nursing college in Borås, Sweden

Background

Increasing amounts of money have been spent in Sweden in recent years to improve training for medical staff in disaster medicine. This has been manifested in several ways, e.g. by placing more emphasis on related topics within the basic training of nurses. More continuation courses for trained nurses, nursing teachers and doctors have been established. The reason for this is that there is a general interest on the part of society in being well organized to cope with major accidents and disasters. The aim is that professional care is to be given at the scene of an accident to increase the chances of survival for as many injured persons as possible.

An organization has been established in which many parts of the emergency services co-operate at the scene of an accident. One part of it is the services provided by nurses and doctors. This requires knowledge and readiness

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for managing situations other than those normally occurring in the hospital. It is important to develop a performance pattern for coping with the increased stress that work of this type entails. Experience from major accidents also shows that knowledge of how to act in the real situation and co-operation with other rescue units are of vital importance.

Butman (1982) has compared performance by rescue personnel during training and at 22 major accident sites. According to his study the following shortcomings were frequently observed:

- 1 Failure in adequately alerting those responsible for the rescue operation [concerns all key rescue personnel and hospitals].
- 2 Lack of rapid 'primary' stabilization of all patients.
- 3 Failure rapidly to move, collect and organize patients at a suitable place.
- 4 Failure to provide proper (or any) triage.
- 5 Use of overly time-consuming and inappropriate care methods.
- 6 Premature commencement of transportation.
- 7 Improper use of personnel in the field.
- 8 Lack of proper distribution of patients, resulting in improper use of medical failures.
- 9 Lack of recognizable EMS [emergency medical services] command in the field.
- 10 Lack of proper preplanning and adequate training for all personnel.
- 11 Failure to compensate for malfunction and inability to handle problems.
- 12 Lack of adequate or proper communication.

CONCEPT OF DISASTER

In *Nursing at the Scene of an Accident*, issued by the Swedish Board of Health and Social Welfare (Socialstyrelsen 1988), the following definition of disaster is given:

Situation caused by accident at which available nursing resources are insufficient and where extraordinary and coordinated actions are necessary

By disaster nursing is meant actions performed by the nurse in the type of situation defined above.

Planning for the community surrounding the disaster site

The planning of medical care and rescue services is based on the problems and accident risks identified within

the area/region concerned. The concept 'disaster risk' is normally used. Furthermore, according to the law of health and medical care (SFS 1982), all hospitals are obliged to have a disaster plan, including procedures for both hospital and disaster site procedures. These plans must contain instructions about various degrees of readiness, responsibilities of the hospital, management, alarm plan, responsibilities at the site, establishing a local disaster office, organization of the disaster committee, distribution of patients, action plans for each ward including provision of equipment. Regional co-ordination of resources must be provided by setting up a regional disaster office and disaster committee.

According to Lennquist (1982) the need for medical intervention at the disaster site has been given central importance in modern nursing. The aims are to move part of the nursing resources from the hospital to the site itself. Underlying this is the knowledge that much can be gained in ensuring patient recovery by rapid assessment, triage and treatment. According to *Nursing at the Scene of an Accident* (Socialstyrelsen 1988), the rescue services should be organized as illustrated in Figure 1.

Theoretical knowledge

The rescue services are designed to deal with both minor and major accidents, even if different amounts of resources are needed. Concerning action at the disaster site, Lennquist (1982) has described it in a way which is almost classic in Sweden today, namely 'as little as possible as fast as possible to as many as possible'. He also emphasizes that work at the disaster site is demanding and includes theoretical knowledge, guidance and training. To become efficient, those involved must perfect their ability to act in an efficient and systematic way.

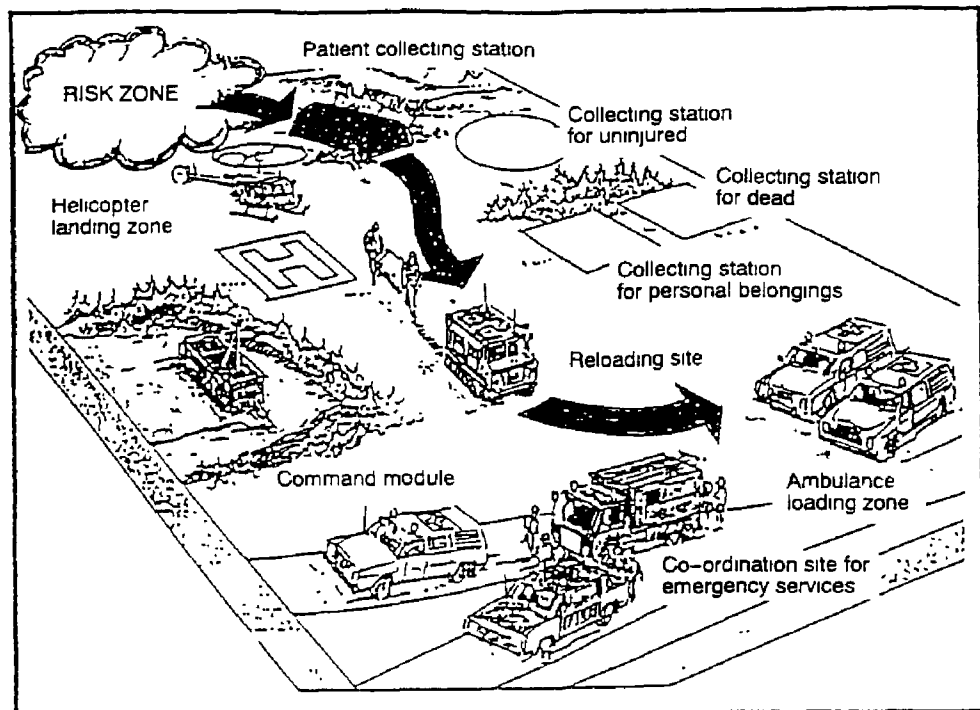
Lennquist (1982) emphasizes that work at the disaster site involves teamwork. That is why knowledge of the resources, tasks and capacity of the rescue services, police and military is important. As far as nurses working in disaster situations are concerned, three concepts are important according to Garcia (1985):

The nurse who has established a role in a disaster setting must then consider three keys to the successful management of patients. These keys can help the nurse adapt to the unusual circumstances that may exist during a disaster. The three keys are orientation, improvisation and aggressiveness.

(Garcia 1985)

To orientate oneself, including assessing the situation, and to establish priorities based on patients' condition, available resources and the nurse's own competence are central.

Figure 1 Plan of organization at the scene of an accident (used with permission of the National Board of Health and Welfare (1988) *Nursing at the Scene of an Accident*. Försvarets läromedels-central, Stockholm, picture 3:3).



Garcia also implies that improvisation is necessary to make it possible for the nurse to manage using simple routines and materials other than those available in the hospital setting. To be active, responsive and able to apply foresight is of great importance in order to prevent disturbances of vital functions.

Mental stability

There is a link between mental stability and ability to perform under pressure at the disaster site. According to Otto (1986) increased mental stress has been observed among rescue personnel after serious accidents. The performance by rescue personnel at the site is affected by many factors. It is therefore important that all who are involved in disaster situations learn to understand and come to terms with their own reactions.

DISASTER NURSING WITHIN NURSING TRAINING

Disaster nursing has been given greater importance in Swedish nursing colleges during the last decade. In Official Reports of the State (SOU 1982) it is made clear that the contents and range of the nursing curriculum should be adjusted to the needs of each student group. It is also emphasized that this is a complicated subject as it is to some extent hard to distinguish from other fields, par-

ticularly medical ones. Moreover, in a disaster situation knowledge from various fields must be put into practice. It is a question of integrating knowledge and skills from different disciplines and a change of attitudes such as understanding the importance of flexibility and improvisation.

The statement confirms that the subject of disaster nursing should be treated as a separate course and that aspects of disaster nursing should be taken into consideration in other educational programmes. The National Swedish Board of Universities and Colleges (UHA 1980) has set the goal of nursing education as follows:

The basic nursing training should be arranged in such a way that the student will be prepared for those special tasks and strains caused by disasters, civil as well as military.

The time devoted to disaster nursing within the basic nursing training amounts to 1 week's full-time study. The course, planned according to the curriculum, consists of the following parts:

- 1 The concept of disaster.
- 2 Disaster risks.
- 3 Rescue services in the community.
- 4 Local ambulance service.
- 5 Planning of the health service.
- 6 Traumatology.

- 7 Disaster drill co-ordinated with the rescue services.
- 8 Civilian health services at war.
- 9 Military health services.
- 10 Civil defence.
- 11 Mental reactions in disaster situations.
- 12 Studies of major accidents.

Aims of the curriculum

The aim of the disaster nursing course is to give the students a basic knowledge of all its parts (see above). They should learn how to approach the scene of a major accident, the risks likely to be encountered, the importance of adequate initial action and knowledge of what to do first in order to attain maximum use of personnel in saving lives. Knowledge of the alarm system is also important at this stage. Staff must be prepared for work at a major disaster site and have knowledge about the organization, capacity and tasks of other rescue team members involved. Knowledge about the capacity of emergency care facilities in peace and war and prehospital resources like medical and ambulance services are also essential.

The students must also be able to act independently in emergencies by taking adequate care of the injured. This applies to people who are injured physically as well as mentally. They must also be aware of where in the organization they best fit and how their knowledge can best be used.

Within the parts of the course dealing with various types of traumas there is an 'everyday aspect', i.e. normal action where there are few injured people (emergency nursing). There is also a 'disaster aspect' meaning that students must learn about nursing action at a major accident (disaster nursing). So each part of the course should deal with both aspects, not least those about burns, infections and injuries caused by chemicals or toxic substances. Knowledge about the organization, staff, resources and tasks of the health service at war is also needed.

Aims of the study

The aim of this study is to examine the knowledge of nursing students about disaster nursing, acting at the disaster site and how they regard their own actions in the role of nurses or as private persons respectively. The aim is also to compare the results of the examination with the training in disaster nursing the students have undergone to find out to what extent the training goals have been achieved.

METHOD

Participants and selection

The examination is a descriptive study conducted in two parallel classes during the second year of the 2-year basic nurse training. The 39 participants, 34 women and five men, were aged between 19 and 47 years.

Data collection and instructions

Each participant was asked to answer questions about an imaginary scenario (see above) describing a major air crash. First, the participants were asked to study the scenario. Then 26 participants were asked to answer in writing how they would act if they arrived at the disaster site as nurses in a medical team. The remaining 13 participants were asked to describe in writing how they would act if they arrived at the disaster site as private persons.

Analysis

The answers were data processed and analysed several times. They were then categorized and processed with the computer program QUALPRO which is specially designed for qualitative studies. The result of analysis is a number of descriptive categories regarding action taken in disaster nursing situations.

Communicability and reliability

The reliability is based on the reader's ability to see a link between interpretation and empirical data. There must be coherence and correspondence. With regard to validity there have been difficulties in finding similar studies for use in comparison with the results obtained here. Searching several databases has been in vain. Also search in the library of FOA (Research Centre of the Armed Forces) and personal contact with experts in this field have not unearthed references to previous research. There is scant evidence of research similar to that in this study.

RESULTS

Acting as a nurse in a medical team

The stated views on nurse's action in a medical team is described in the categories G1 and G2 (G stands for acting in a group) (see Table 1).

Table 1 Acting as a nurse in a medical team: distribution of categories

G1 To be effective and act rationally	11
a Attempts to survey the situation	11/11
b Establishes triage among the injured	9/11
c Works calmly and efficiently	10/11
d Performs the ABCs	11/11
e Takes care of shocked persons	6/11
f Is aware of risk zones	5/11
G2 To be part of the planned organization	15
a Contacts the overall disaster officer	15/15
b Works at the collecting station	8/15
c Works according to the doctor's orders	5/15
d Performs medical treatments	9/15

To be effective and act rationally (G1)

Category G1 describes statements about a rational performance pattern by being efficient and giving maximum life-saving care. In this category one also finds descriptions about contacting the overall disaster officer and working at the collecting station but the main stress is placed on one's own action. First, the participants attempt to survey the situation (G1a). What is it like at the site and what has happened? One participant writes:

One tries to realize how big the accident is and if there are any injured. We split up to go and find the injured and attempt to make a first assessment for the triage.

Triage is established (G1b). This means that the participants range the injured in order of gravity of trauma before any care is given or transportation to a hospital. To work calmly and efficiently (G1c) shows a professional attitude, i.e. a consistent and competent mode of acting. The use of a systematic performance pattern and attempts to avoid stress are often expressed in the statements. One student writes:

One tries to work calmly without getting into too much stress and strain.

Nurses perform basic life-saving measures (G1d), in Sweden commonly known as the ABCs (breathing, bleeding and shock). Here the participants describe how they take life-saving measures concerning breathing, bleeding and shock. Many say that breathing is most important here. Some say that they take care of the mentally shocked (G1e). One writes:

One tries to calm and comfort patients who are frightened, shocked or alarmed.

Awareness that there is a risk zone (G1f) includes statements about there being a zone around the site where there is a risk of fires and explosions, for example.

To be part of the planned organization (G2)

Category G2 (Table 1) is based on descriptions in which the action plan and leaders at the disaster site are the factors that most strongly influence the participant's view of his/her action. There are also statements about performing basic life-saving measures but these are not frequent enough to give them a place in the preceding category. The student nurses say that they contact the overall disaster officer (G2a). This shows that contacting someone in charge is regarded as important in order to announce that you have arrived at the site. It is seen as important partly because of the need for information, and partly because staff want to know where they can start working.

Those mentioned as being able to give this sort of information are the persons in command of the fire brigade or the command module ambulance. One student writes:

Immediately on arrival the medical team members contact the overall disaster officer to be briefed about the situation, e.g. the number of injured, seriousness of injuries, casualties, where the collecting station is, etc.

Some say that they work at the collecting station (G2b). This signifies the view that it is at the collecting station that the main part of the work of nurses shall be done. Working according to the doctor's orders (G2c) evolves from descriptions expressing the need for contact with the doctor and working according to his/her directions. This reflects the view of the nurse as subordinate to the doctor in a hierarchy. One's own initiative is not emphasized; the doctor is the one who is in charge. One student writes:

One keeps in touch with the doctor who is head of the medical team.

Many of the student nurses say that they perform medical treatments (G2d). By this is meant what is considered as more advanced nursing procedures. Medical equipment of some kind is used. One student writes:

One starts intravenous therapy and relieves pain. One stops bleeding, prevents shock, places fractured bones in traction devices after repositioning, if necessary.

Acting as a private person

The stated views on nurses acting as private persons is described in the categories P1 to P4 (P stands for acting as private person) (see Table 2).

Table 2 Acting as a private person. distribution of categories

P1	Unclear view of one's own action	8
a	Hesitation concerning one's own role	6/8
b	Acts according to orders	6/8
P2	Clear view of one's own action	5
a	Surveys the situation	5/5
b	Gives the alarm	5/5
c	Performs the ABCs	5/5
P3	Works according to doctor's orders	4/13
P4	Performs medical treatment	2/13

Unclear view of one's own action (P1)

Category P1 is based on statements expressing that the individual has no given role in the work at the disaster site. Uncertainty whether it is possible to be of any use at all as a nurse is expressed here (P1a). Confusion occurs at an early stage:

I feel I can't do anything at the disaster site; I might be given some task like joining a transport [to the hospital].

Some say that they do as they are told (P1b). This reflects a rather passive attitude towards taking part in the work at the disaster site:

I'll probably do as I'm told. It's hard to answer this question.

Distinct view of one's own action (P2)

Category P2 expresses the desire to be of immediate help. A more professional attitude is reflected and the statements emphasize efficiency and ability to choose the correct course of action from many possible alternatives. Some answer that they survey the situation (P2a). This describes the notion that, first of all, an overall view of the situation is needed. Some participants write that they give the alarm (P2b), which means that the unified emergency centre is called by the number 90000:

If I am one of the first to arrive I make sure that the unified emergency centre is alerted

Some say they perform the ABCs (P2c). In most cases, breathing difficulties are considered to be the most urgent.

Works according to doctor's orders (P3)

Category P3 expresses confidence in the doctor's instructions. The students give themselves a less important

role in mastering the situation. They still have not found their professional role and position so they tend to subordinate themselves within the hierarchy:

Probably soon a doctor who will take charge of the situation will come. Then he will give directions to all people present

Performs medical treatment (P4)

Category P4 includes descriptions of what is counted as rather advanced medical treatment. Some sort of medical equipment is used.

DISCUSSION

The research findings emerge from a number of categories describing how the students would act in disaster nursing situations. Formulation of categories has been based on the students' descriptions. Concerning the issue of acting as a nurse in a medical team it is satisfying that so many express a patient-centred attitude according to category G1. This concurs with the training goals of becoming proficient in caring for the injured person in an adequate way.

It is disappointing, bearing in mind the goals of the curriculum, that so few pay attention to the mentally shocked and the relatives of injured persons. Judging this is hard as it is given much attention in the training. Extensive training about emergency procedure is provided, both regarding care when few injured are involved and in the disaster situations. Certainly there are many reasons for this. Do students have too little knowledge or is it that they regard the physical injuries as most important?

The organization

Knowledge about the organization (category G2) is also important. To show that the aims of the disaster nursing course have been fulfilled, it would therefore be desirable that the students should emphasize individual action and the organization. It is apparent that the participants' view of what is important varies a lot. This is obvious as far as one's own action as a nurse is concerned. Some students lay most stress on one's own action, such as following a performance pattern to do a good enough job.

Several participants emphasize the importance of working calmly and systematically. This way of reasoning is closely related to what Lennquist (1982) describes as working according to a preset performance pattern. Others lay more stress on fitting into the planned organization and working according to this. One reason for this could be that we are all different as individuals. To others the organization means security. There is a hierarchy to fall

Table 3 Acting as a member of a medical team: the most common attitudes

Subject	G1						G2				n
	a	b	c	d	e	f	a	b	c	d	
25							x	x	x	x	4
28	x			x	x	x					4
30	x	x		x			x				4
34	x		x	x		x	x				5
38	x	x	x		x						4
40	x	x		x	x		x				5
41	x	x	x	x		x					5
43				x			x	x	x	x	5
44	x	x	x			x					4
	7	5	4	6	3	4	5	2	2	2	

into. Some participants regard what they can do themselves as most important—more important than the organization itself.

What is mentioned last could be interpreted as a high degree of professionalism in the disaster situation and a marked awareness of the demands inherent in the professional role. This is in accordance with the description by Garcia (1985) who refers to the 'keys' needed to establish one's role as a nurse in a disaster situation.

Common attitudes

What are the most common attitudes among those who have participated in the study acting as a nurse in a medical team? Table 3 lists that the students try to survey the situation, do triage, perform the ABCs and contact the overall disaster officer. They emphasize a systematic performance pattern and to some degree ideas about 'falling into' the organization. Only two of them think that 'falling into' the organization is more important than acting on one's own.

Is it true that those in favour of a systematic performance pattern have acquired a more professional attitude than those who only talk about falling into the organization. What type of professional role does society want. In the curriculum it is made clear that acting on one's own initiative is a central part of the professional role. Comparatively few take the psychological aspects involved at the disaster site into consideration. Those who do express it in terms of 'taking care of' the mentally shocked.

The situation of coming to the disaster site as a private person is dealt with in different ways by the students. Comparatively few were asked to describe this, but from their way of reasoning two main views can be discerned. One a conscious, clear view about how to act and the other an unclear, hesitant one. The basic intention of the training is to make the nurse aware of what to do in a disaster situation. That intention is not reflected in all answers about acting as a private person.

Some of the participants were more orientated toward using their own initiative. Others turned to those acting as professionals at the disaster scene. This can be seen as unwillingness to take on a professional function when not on duty. Some participants think that a nurse's duty is always to become involved, even when off duty. Others take into consideration whether they are on duty or not. 'If I'm not on duty I only join in if I'm asked', one says.

Not on duty

As far as those who arrive at the disaster site when not on duty are concerned, some say that they raise the alarm (category P2a). This can be viewed as a result of training, i.e. an acquired performance pattern. Another matter of importance to the participants was their role as students. The hesitation that some felt in the role of a private person could be due to the fact that they still do not regard themselves as trained nurses. There could also be a feeling that their knowledge is not adequate, resulting in a lack of confidence in their own ability or it could be even be the role you give yourself when you try to imagine the scenario.

There is reason to believe that the descriptions adequately reflect the students' views of disaster nursing. This is due to several factors. First, the nursing students generally are ambitious and want to do their best and, secondly, the data collection was made at a time when images of disaster reached us daily via the media from the Gulf War in progress at the time. This background probably affected and deepened the students' ability of imagining the scenario.

CONCLUSION

The conclusions to be drawn from this study are, among other things, that the goals of the curriculum are fulfilled as reflected in the students' descriptions of their own action in a medical team by a systematic performance pattern and caring for physical injuries.

The goals for dealing with mental reactions have not been achieved as this is not specifically mentioned in the students' answers.

Disaster nursing is a complicated area. Certainly the ability to master the role as a nurse in a disaster situation will improve when the group of nursing students who took part in this study have further professional experience as nurses.

Acknowledgements

The author wishes to thank the research committee members in the county council of Älvesborg for their support. The author also wishes to thank Professor Claes-Göran Wenestam for his guidance in the study on which this paper is based, and Bo Larsson MA, teacher of English, for help and advice.

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