International Emergency Nursing (2013) 21, 123–128

Available at www.sciencedirect.com

SciVerse ScienceDirect

journal homepage: www.elsevierhealth.com/journals/aaen

Nurses experiences in chemical emergency departments: Iran–Iraq war, 1980–1988

Mohammadreza Firouzkouhi MSc in Nursing Management (PhD Candidate) [a], Ali Zargham-Boroujeni PhD in Nursing (Assistant Professor) [a,*], Morteza Nouraei PhD in History (Associate Professor) [b], Hojatollah Yousefi PhD in Nursing (Assistant Professor) [a], Colin A. Holmes MPhil, PhD, RN, MRCNA (Professor) [c]

[a] *Nursing and Midwifery Care Research Center, Faculty of Nursing & Midwifery, Isfahan University of Medical Sciences, Isfahan, Iran*
[b] *Department of History, Faculty of Literature & Humanities, University of Isfahan, Isfahan, Iran*
[c] *School of Nursing, Midwifery & Nutrition, James Cook University, Townsville, Queensland 4811, Australia*

Received 1 December 2011; received in revised form 4 March 2012; accepted 7 March 2012

KEYWORDS
Historical research;
Emergency care;
Military nursing;
Chemical warfare

Abstract
Background: Nurses have played a major role in taking care of the wounded across the centuries. One of the most important roles of Iranian nurses in wartime has been working in chemical emergency departments. This study investigated the nature of nursing practice in chemical emergency departments created in the context of the Iran–Iraq War fought during 1980–1988.
Method: This is a history methodology design with oral history and in-depth interview to detect nurses 'actual experiences in chemical emergency departments while taking care of the chemically injured military forces.
Findings: Today's nurses emphasize finding new ways to fulfill the present nursing needs and to combine theory and practice in an appropriate framework.
Having a retrospective approach to utilize nurses' experience can well clarify the future way to achieve this goal.
Conclusion: This study revealed the way the nurses prepared to take care of the chemically injured in miserable situations and their practice in chemical emergency departments. It highlighted their awareness of wartime nursing and the challenging experiences it brings.

Corresponding author. Tel.: +98 3117922964; fax: +98 3116699398.
E-mail addresses: firouzkouhi@nm.mui.ac.ir (M. Firouzkouhi), zargham@nm.mui.ac.ir (A. Zargham-Boroujeni), m.nouraei@ltr.ui.ac.ir (M. Nouraei), yousefi@nm.mui.ac.ir (H. Yousefi), colin.holmes1@jcu.edu.au (C.A. Holmes).

1755-599X/$ - see front matter
http://dx.doi.org/10.1016/j.ienj.2012.03.002

Introduction

The use of chemical weapons as an efficient tool to disable or kill the enemy in wartime has a long history, and was a significant aspect of the Iran–Iraq war. The Iran–Iraq war, also known as ''the Imposed War'' (*Jang-e-tahmīlī*) and ''Holy Defense'' (*Defā'-e-moqqaddas*) in Iran, and as ''Saddām's Qādisiyyah'' (*Qādisiyyat Ṣaddām*) in Iraq, began in September 1980 and lasted until August 1988, and cost both sides vast numbers of casualties. Chemical weapons began to be used by Iraqi forces as early as January 1981 (Tavernier, 1993, p. 175), and throughout 1983–1987 were used on both military and civilian populations, creating what is widely estimated to be c.50,000 casualties, with long-term effects increasing the number to c.100,000 (Gupta, 2009, p. 11). The Iran–Iraq war ranks behind only the First World War in terms of the variety and quantity of chemical weapons employed, and the consequences will last for many decades (Foroutan, 1998a).

Casualties from chemical warfare agents represent a significant challenge to emergency departments, since they are radically different to those normally encountered in peacetime, including those associated with natural disasters, and it is widely agreed that even sophisticated health care systems are ill-prepared for such casualties (Rodgers, 1998). During the Iran–Iraq war, special treatment facilities for chemically injured military forces, such as field hospitals, chemical emergency departments and chemical recovery rooms, were established so that chemically wounded personnel could receive immediate and special care with regard to their signs and symptoms, and the type of chemicals employed. Chemical Emergency Departments, as part of the armed forces medical services, were responsible for developing and administering special treatment plans, conducting chemical clean up, preventing secondary symptoms, and protecting health professionals. The high quality of care in these facilities put them in great demand (Wang et al., 2004). Sulfur mustard was the most commonly used chemical weapon during the conflict, and causes long term complications in the respiratory system, skin, eyes, and a variety of different effects depending on the nature of the exposure and individuals' resistance (Dacre et al., 1996; Foroutan, 1997b; Riley, 2003). Nerve agents, cyanide and other poisons were also used and, with their acute poisonous effect, these have a high mortality rate. Due to their instability in the environment and unpredictable effects on the body, the long term complications of these substances are uncertain. The picture is also complicated by the significant immediate and long-term psychological impacts of exposure to chemical weapons (Romano and King, 2001).

The limited experience of encountering and responding to chemical weapons, and to managing those affected, initially leads to high mortality and serious injuries (Betts-Symonds, 1994), and this was the case in the Iran–Iraq conflict. Some individuals exposed to sulfur mustard, for example, faced complications needing life-long care, with some dying as late as 22 years after the war (Zahir et al., 2000). The study reported in this paper focuses on nursing practice in chemical emergency departments and offers a description and analysis of nurses' experiences.

Methods

Historical methodology was utilized to achieve the research goal, and the method of oral history was used to gather the primary data. A widely acknowledged weakness of historical methodology has been a lack of clarity as to how the collected data are actually analysed to produce a credible and trustworthy narrative, and to address this the oral history method used in the present study employed the four levels of analysis described by Miller Rosser et al. (2009), directly linking method to methodology. Although oral history, where a contribution is made to historical knowledge by telling one's personal story, dates back to prehistory (Thomson, 1999), it was first used systematically as a research method in 1948 by Professor Allan Nevins, of Colombia University, and the First International Conference on Oral History was held in Essex, England, in 1979 (Perks and Thomson, 1998). It has been described as the process of recording and interpreting the spoken recollections of individuals (Biedermann, 2001a; Sommer and Quinlan, 2009) and as ''the collection of stories and reminiscences of a person or persons who have firsthand knowledge of any number of experiences'' (Janesick, 2010, p. 2).

During the Iran–Iraq war, volunteer nurses would be called for by public announcements and expedited to the battlefield as needed in the form of emergency teams from different cities of Iran, based on their past experience of serving in chemical emergency department in the field of battle or in training courses, as well as their experience of working at chemically injured forces recovery rooms. Although nurses working in the battle zone would serve just at the time of the operations, they also had general war experience. In this study, 18 volunteer nurses who had served in chemical emergency departments in the battlefield, undertook an in-depth interview. The nurses were working in the Ministry of Health and Medical Education at the time of the study, and had experience in chemical emergency departments at the time of war. Diaries, personal documents and photos such as reports and other available evidences were used to aid recollection and cross-check participant's claims.

The present study began following approval by the Ethical Consideration Committee, based on the Isfahan Medical University Ethical Considerations Protocol. The participants were contacted and, once written informed consent had been given, arrangements were made for the interviews. After the interviews, participants were given a file number and their data anonymized. The audiotape interviews were transcribed verbatim by the researcher, and the transcripts analyzed using oral history analysis (Miller Rosser et al., 2009), with the aim of clarifying the nature of nursing practice in response to chemical warfare during the 8 years of war. First, the interviews were coded, this created the initial themes, and then by constant comparison the initial codes were grouped based on their similarities to form categories.

To enhance analysis credibility, data were validated through verification of the findings with the participants to ensure they recognized them as a true representation of their narratives.

The following accounts record the events of the war in two stages, the first from 1980—84, the second 1985—1988, and interview the recounted experiences of the participants in the study.

Nurses' experiences in chemical emergency departments 1980—1984

Chemical weapon attacks started shortly after the war between Iran and Iraq began. These chemical attacks have always been considered as a catastrophic event in Iran. The findings extracted from interviews reveal that use of chemical weapons gathered pace as the war progressed, and three different stages can be identified.

The first stage (December 1980—June 1983) began with the Iraqi army experimenting with chemical attacks involving basic substances, such as tear gas and nauseous chemicals, associated with low mortality and injury rates. The second stage (July 1983—January 1984) was characterized by centralized but limited attacks, often using bombs to release a black smokey substance likened by witnesses to fuel oil, but which had sharp garlic-like smell, and spread across the ground around the troops. Those affected manifested eye irritation after 2—3 h, which ameliorated within 7—10 h, together with vomiting after 5—7 h. Mustard gas was used on a smaller scale, producing low numbers of casualties with relatively minor symptoms which responded rapidly to treatment. The third period started in February 1984 and continued until the war ended in 1988. It saw the use of the most injurious and sustained chemical attacks, involving blistering agents, and agents which affect the vascular or nervous system, and even some unknown agents (Foroutan, 1996).

Based on participants' narratives, the war began across a wide front. The border towns were directly involved in the conflict, so that health centers such as hospitals could only offer reduced services because of the risk to their personnel. During this period, health staff gathered experience in caring for and managing chemically injured soldiers, and in transporting them after the condition was stabilized. This experience was matched by a corresponding development of their clinical knowledge as they faced each situation. Some nurses reported that they encountered casualties who smelled of garlic and said they had a metallic taste in their mouth, and that on waking they had itchy skin.

Participant 14, for example, narrates:

> *At the beginning of war, we knew nothing. Some military forces would claim to be shot closely to their trench causing them to vomit within 1—2 h. The number of cases was low but we would send them to health centers in border towns. They were diagnosed to be chemically attacked. At that time, we learned that there were chemicals around us.*

At that point in the war, those taking care of the troops were volunteer medical staff, called 'Emdadgar', and had no education regarding the chemical agents and no experience in this type of work. They could only administer first aid to the chemically injured at the front, and then transfer them to medical centers in the border towns. The use of tents and galvanized iron huts as primary medical treatment units, as an improvised response to the high number of chemically injured individuals and their need for emergency medical care, was a particularly creative and invaluable idea.

Parallel to the growing pace of war, and with the greater and more diverse use of chemicals, better equipped medical centers such as hospitals, field hospitals and chemical field emergency centers, with more professional facilities and a better supply of medication, were formed. In addition, the establishment of the Relief and Treatment Center (Emdad & Darman office) in Tehran led to the creation of provincial treatment centers to expedite the use of volunteer medical teams. These included general physicians and nurses, who would enter the combat area in the form of emergency teams and then withdraw to their mother centers in hospitals as the military operations ended and a stable situation had been established.

Participant 2 narrated:

> *As soon as the chemical warfare was applied the relevant emergency departments were established. The nurses in charge in these centers had to decontaminate the injured, apply the preliminary treatment and transfer them to the special treatment centers. To reach this point we lost a lot of patients and efforts.*

For further treatment, chemically injured patients were sent to specialist hospitals in the major cities. Nurses' constant engagement with the war taught them valuable lessons and enabled them to give better care to a wide variety of chemically injured patients. With the increased use of new chemical weapons, professional education had to be provided in chemical emergency departments, so that all personnel could be updated with the new treatment techniques which would enable them to provide quality critical care.

In the Badr operation of 10th March 1985, in addition to nerve gas, used from the first day, mustard gas was widely used. Worst of all, cyanide and its by products were also used during the conflict, for only the third time in history, the previous occasions both being during the First World War. In addition, a type of gas which caused skin itching, and an unknown gas which killed two solders within 24 h, were used together with phosphorous bombs, taking c.2000 troops out of the battlefield due to injury. A number of combatants succumbed to cyanide in less than 2 min (Foroutan, 1998b).

Combat health care centers conducted on-site research to help improve clinical techniques and concluded that the treatment of chemically injured individuals had to begin at the frontline. Trained nurses were therefore sent to chemical emergency departments and field hospitals at the frontline, and achieved significant success. Awareness of a need for a chemical attack treatment system and for some changes in view of the high number of chemically injured needing immediate first aid care to prevent their complications was reinforced for nurses on the frontline, especially when facing the death of victims of chemical weapon attacks about which they had a lack of knowledge.

Nurses' experiences in chemical emergency departments 1985—1988

Because of the improvement in the Iraqi army's ability to deploy chemical weapons through air raids and tank attacks, health centers in residential areas and frontier towns were frequently attacked, creating many casualties. As a result, Nuclear Biological and Chemical Weapons Units (NBCWUs) were established in Iran in 1985 to develop and oversee counter-measures. Its main duty was to train forces and equip them with personal and specific facilities to reduce the impact of chemical attacks. In combat zones, NBCWU would warn troops that chemical attacks were imminent and that they should wear their masks and use the relevant equipment.

Some NBCWU would also clean up the chemical area and defuse the remains of bombs after an attack, while others would transfer the injured to the newly formed chemical emergency departments and field hospitals. With the formation of NBCW units, and the experiences the doctors and nurses were gathering about chemicals and treatment of chemically injuries, the emergency departments, field hospitals and special recovery rooms became effective in treating these patients in the battlefield. The closer these units were to the forces and front lines, the more important the role played by nurses in diagnosing and treating these patients in the absence of adequate numbers of doctors.

Participant 14 narrated:

> *In 1985, we were among those nurses who had passed just theoretic courses with no work experience. We learned to diagnose the type of toxicity and apply our theoretic knowledge to work through time and manage to administrate emergency care which resulted in saving a lot of lives by our quick reaction.*

The efficient work of nurses alongside other clinical staff in field emergency centers, together with their on-site caring role, noticeably diminished chemical mortality. Thus, although there was an increasing number, severity and variety of chemical attack in the combat zone, chemical mortality decreased.

Secondary sources confirmed what happened in the Valfajr 8 operation in January and February 1984, where 11 field emergency departments and one central emergency department were formed beside Alzahra field hospital. Sarin nerve gas was used in this operation resulting in some 8500 casualties, and some recovery rooms, in which nurses took care of and treated the injured, were active in southern areas for 3 months. Most casualties were treated in field emergency centers and then transferred behind the lines, notably to Tehran (Foroutan, 1997a).

Clinical tasks were allocated to specific nurses and medical staff in situations in which many of them were exposed to chemicals, either while taking care of the chemically contaminated patients or due to direct chemical attacks on emergency departments. Most of the nurses, as well as many of the troops, were contaminated by mustard gas, and are today still coping with its long-term effects, principally those on the respiratory system, skin and eyes. At that time, nurses' education focused on the types of chemical gases, on chemical contamination and decontamination, and treatment and chemical area clean up. Upon completion, they would start work in emergency settings and were often in charge of the centers. Clinical work would be programmed daily on a routine basis, but once attacks took place, all staff would work together as a team and, depending on the situation, this could last for a couple of days at a time.

Triage was especially important in chemical emergency centers, which had been designed to enable classification and group treatment based on treatment protocols. Patients would remove and deliver their contaminated clothes and equipment for decontamination and burning, take a shower and then be screened into outpatient and inpatient groups. Those critical patients in coma or those with severe muscular fatigue would be sent directly to ICU by stretcher, along with their contaminated clothes. There, decontamination and treatment would be carried out simultaneously. Patients were triaged into three groups and each group guided to a particular section to undergo special treatment related to that section. Experienced nurses tended to be employed in the critical care sections or ICUs. In an inpatient section, sub-critical patients would receive muscular injections and bed rest, whereas in an outpatient section, minor chemical problems were managed under nursing supervision and treated by oral medication. In the case of toxicity with mustard gas, all steps such as changing clothes, having a shower and taking medication would occur. Exposure to nerve gas, however, meant direct transfer to ICU immediately after changing clothes and a bed bath if required. Management of these steps was important because of the large number of patients, and many patients had to be transferred prematurely to a recovery room in order that different sections could make room for other incoming patients.

Participant 13 noted that:

> *One of the most essential and vital duties of nurses in emergency department was to apply triage, an effective measure in the kind of situation. When we were faced with a big number of chemically injured, this process become harder.*

Based on the findings of the interviews, it appears that chemical emergency departments provided much of the care for chemically injured soldiers. For patients in a critical state and needing cardiovascular resuscitation, some primary actions were accomplished, including insertion of IV Catheter Line, airway management, and infusion of 5% dextrose. For the critically ill, antidotes were given prior to intubation; sometimes an IV line was not possible, vital medications were administered via a tracheal tube, and an IV line was set up only after the patient had begun to recover. Oxygen was administered, although this depended on the type of noxious agent, most often for victims of mustard gas, nerve agents, or cyanide gas; intravenous injection of sodium nitrite, sodium thiosulphate and amyl nitrite inhalations, were used in the emergency treatment of cyanide poisoning. Sodium bicarbonate was also injected in order to increase urinary output, and if aware, patients were encouraged to drink copious fluids. Upon completion of these interventions, patients were kept under observation in a recovery room for 48 h.

When patients affected by mustard gas reached emergency they had reddish skin and small pimples but no blistering. Through time in the recovery room, blisters would

often appear and grow bigger, followed by dyspnoea resulting in a severe condition necessitating transfer to ICU. The care given was that appropriate to second degree burns, the main aims being to preserve the non-opened blisters and prevent infection of the opened ones. Thus, according to Participant No.15:

> *...Special treatment protocol was for three major cyanide, nerve and mustard gas. All the management would be administrated by the nurses. First of all, you had to diagnose the gas, then, classify the patient and start treatment. In case of a nerve gas, there was a lot of sweating resulting in a vein collapse. It was so that we had to fix IV Catheter Line by a band instead of medical tape. Next, muscular injection of Cobalamin combinations, and based on patients' condition, Atropine would be done. We had to dilute Sodium thiosulphate in Dextrose 5% serum and hang it to serum stand beside patients' bed.*
> *For the patients of cyanide and nerve gas, if alive, the patients would be transferred to emergency. Firstly, Nitrite ampoule and then, diluted thiosulphate would be injected.*

Based on the findings of the interview, one of the greatest dangers threatening those nurses taking care of injured patients in emergency departments was either exposure to chemicals or being chemically attacked in emergencies or field hospitals. Many nurses attending the battlefield were contaminated and now face long term complications affecting their respiratory system, skin and eyes.

In emergency departments, working with masks, especially at the time of vein catheterization, was impossible due to dim light. Wearing protective clothes was also impossible due to the hot weather, and so nurses preferred to work just with a thin white uniform which quickly resulted in contamination. Because of long working hours, their exposure was significant, and in some cases they themselves needed treatment. This, together with chemical attack from the air, by artillery and helicopters, killed nurses, doctors and other medical personnel.

Participant No. 8 described the situation as follows:

> *We were working in the emergency ward when many chemical patients were transferred. We had to lay them on the ground due to lack of enough beds. I felt I had to take off my shoes in order to be able to walk easily among the injured to take care of them; otherwise, I would hurt them. At the end of the day, I found blisters on my feet since they had been contaminated by mustard. I am still involved with those complications.*

On February 27, 1986, at least ten Iraqi jet fighters bombarded Fav. Alzahra field hospital, using chemical weapons, resulting in the contamination of many hospitalized patients and medical staff, including nurses. The hospital had to be evacuated, cleaned up and medical personnel replaced (Foroutan, 1997a).

At the beginning of the war, the armed forces, nurses, and medical staff had no experience in chemical attacks and picked up their knowledge of protection and treatment through time and their related experiences of the widespread use of these weapons. The war lasted until July 1988, with a lot of ups and downs in nursing care within those years. Narratives from interviews conducted with nurses revealed the extremely difficult working conditions they experienced in chemical emergency departments, but were testimony to the devotion they showed in trying to decrease mortality, disability and serious injuries. The narratives also revealed how the experience had harmed the nurses themselves, physically and mentally. It is significant that they willingly shared their experiences in educational and clinical environments with students, after the war and helped make significant improvements to our understanding of the needs have all those affected by the use of chemical agents in wartime.

Discussion

The Iran—Iraq war was the longest in the 20th century, and it caused nurses to be pioneers in their clinical work, affected their career trajectories, changed the Iran's social structure and prompted the formation of new values and beliefs. Nurses tell stories about special situations in which there was both happiness and sadness. The nurses' accounts are living witness of humanity, bravery and self-sacrifice which can perhaps serve as a model for today's nurses, helping them to successfully provide their clients with better healthcare.

Tough working conditions in chemical emergency departments, coping with the admission, treatment and care of large numbers of patients with different clinical manifestations, working beyond expected criteria, under enemy fire in a hot, cold or dark environment, and being in life-and-death situations, were all part of the nurses' experience. As in the case of nurses in the Vietnam War, they acquired expertise by facing a demand for immediate care in unique and difficult situations, with particular patients each with specific sets of clinical need (Norman, 1985; Scannell-Desch, 2005).

The findings by Kelly (2010), indicate that the differences in emergency clinical activities in the battlefield and under normal conditions, is subject to the status of the injury type and the number of casualties. The nurses who were not well acquainted with working in a battlefield and had little clinical experience, and would normally study nursing during their posting, rapidly became experienced and skilled clinicians who could provide the best possible care, and with their consequently high self-confidence, could soon take charge of an emergency department or a special field hospital. In her study of the Vietnam War (Biedermann et al., 2001b), showed that in some situations nurses were capable of matching their care in field hospitals to the increasing number of injured patients without compromising clinical standards, learning new skills as they went along.

According to Macintyre et al. (2000), nurses caring for chemically injured individuals in emergency departments, should have the specialized knowledge required to enable them to recognize the type of the chemical agent used, to conduct rapid decontamination, triage, and medical treatment and facilitate simultaneous coordination with high specialized centers. However, it is also recognized that some war experiences are never repeated and are unique for each individual, and that managerial and clinical nursing duties in emergency departments can lead to a variety of experiences. The important role of nurses in a combat zone in taking care of the injured in chemical emergency

departments, and reducing mortality rates associated with the use of chemical weapons, has not previously been investigated.

Conclusion

This short study showed that nurses can care for a large number of casualties to the highest standards in extremely challenging circumstances. In this case, the performance of the nurses, together with their loyalty and bravery, brought honor to the health system and nursing, and as a result the Iranian public came to regard nursing, and emergency nursing in particular, as an impressive and highly professional career. The record of their clinical experiences and the different roles they undertook illustrates that civilian nurses can be effective in battlefield emergency departments and that they are able to quickly adapt to that environment. The study showed how wars may create circumstances which enhance nurses' learning by providing new and challenging experiences, and that they may contribute to advances in nursing, both clinically and as a profession. Lastly, the study illustrates that these positive effects may come at the price of personal distress, in the short term or sustained over many years, and that the importance of extending post-traumatic support services to those who are witnesses to major conflicts, including health care staff, should not be underestimated.

Author contributions

Mohammad Reza Firouzkouhi conducted the preliminary design, data collection, analysis, and drafting of the manuscript under supervision of Ali Zargham-Boroujeni. Ali Zargham, Morteza Nouraie , Hoggat allah Yousefi and Colin A. Holmes were responsible for critical revisions of the manuscript, for important intellectual content and supervision and gave the design and the final shape of the manuscript.

Funding

This study was supported by grants from Isfahan University of Medical Sciences, Isfahan, Iran.

Acknowledgments

We wish to thank all the participants of the study for sharing their experience with the researchers. It is mentionable that, without their cooperation it was not possible to accomplish this research.

References

Betts-Symonds, G., 1994. Major disaster management in chemical warfare. Accident and Emergency Nursing 2, 122—129.

Biedermann, N., 2001a. The voices of days gone by: advocating the use of oral history in nursing. Nursing Inquiry 8, 61.

Biedermann, N. et al, 2001b. The wartime experience of Australian Army nurses in Vietnam. Journal of Advanced Nursing 35, 543—549.

Dacre, J.C., Beers, R., Goldmann, M., 1996. Toxicology and pharmacology of the chemical warfare agent sulfur mustard. Pharmacological Reviews 48 (2), 289—326.

Foroutan, A., 1996. Medical notes on the chemical warfare: Part I. Kowsar Medical Journal 1 (1), 91—97.

Foroutan, A., 1997a. Medical notes on the chemical warfare: Part IV. Kowsar Medical Journal 2 (2), 141—151.

Foroutan, A., 1997b. Medical notes on the chemical warfare: Part II. Kowsar Medical Journal 1, 159—177.

Foroutan, A., 1998a. Medical notes on the chemical warfare agents: Part VII. Kowsar Medical Journal 3, 81—90.

Foroutan, A., 1998b. Medical notes on the chemical warfare agents: Part VI. Kowsar Medical Journal 2, 91—100.

Gupta, R.C., 2009. Handbook of Toxicology of Chemical Warfare Agents. Elsevier, London, p. 11.

Janesick, V.J., 2010. Oral History for the Qualitative Researcher: Choreographing the Story. The Guilford Press, New York, London, pp. 2.

Kelly, J., 2010. Battlefield conditions: different environment but the same duty of care. Nursing Ethics 17 (5), 636—645.

Macintyre, A.G., Christopher, G.W., et al, 2000. Weapons of mass destruction events with contaminated casualties. JAMA: The Journal of the American Medical Association 283 (2), 242—249.

Miller Rosser, K., Chapman, Y., Francis, K., 2009. Analysing oral history: a new approach when linking method to methodology. International Journal of Nursing Practice 15, 457—480.

Norman, E., 1985. Nurses in War: A Study if Female Military Nurses Who Served in Vietnam During the War Years, 1965—1973. New York University, United States, New York, p. 58.

Perks, R., Thomson, A., 1998. The Oral History Reader. Psychology Press, p. 3.

Riley, B., 2003. The toxicology and treatment of injuries from chemical warfare agents. Current Anaesthesia & Critical Care 14, 149—154.

Rodgers, J.C., 1998. Chemical incident planning: a review of the literature. Accident and Emergency Nursing 6, 155—159.

Romano Jr., J.A., King, J.M., 2001. Psychological casualties resulting from chemical and biological weapons. Military Medicine 166 (Suppl. 2), 21—22.

Scannell-Desch, E.A., 2005. Lessons learned and advice from Vietnam war nurses: a qualitative study. Journal of Advanced Nursing 49, 600—607.

Sommer, B., Quinlan, M.K., 2009. The Oral History Manual. Altamira Pr, p. 1.

Tavernier, P., 1993. The UN Secretary-General: attitudes and latitudes. In: Rajaee, F. (Ed.), The Iran—Iraq War: The Politics of Aggression. University Press of Florida, pp. 167—182.

Thomson, A., 1999. Making the most of memories: the empirical and subjective value of oral history. Transactions of the Royal Historical Society (Sixth Series) 9, 291—301.

Wang, T.L., Chen, H.T., Chang, H., 2004. Hospital preparedness for weapons of mass destruction incidents: an initial assessment. Annals of Disaster Medicine 2 (2), 74—78.

Zahir, M.H., Ebtekar, M., Khairandish, M., 2000. Corresponding reaction between mustard gas and safety system. Journal of Military Medicine 2 (1), 51—54.