TRAINING HEALTH PROFESSIONALS IN A SECURITY ENVIRONMENT: A DISCUSSION PAPER

By

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Abstract

Training of health care professionals is unique owing to the need for knowledge acquisition, skills, and competencies in caring for human life. It requires a delicate balance on what should be done for the client/ patient and their families to avoid adverse outcomes. The situation becomes worse in a risky environment that compromises the lives of both health professionals and care seekers. These individuals are likely to face serious health risks such as exposure to hazardous materials, physical injuries, and mental stress. With complexities in health care and management, there is a need to diversify health professional training to reduce such risks. Therefore, learners working in such a set-up need to be equipped with not only professional knowledge but with additional training to prepare them for deployment in security-challenged settings. Training on how to respond to emergencies in a tactical manner is critical. For example, interlacing basic life support with tactical combat casualty care. In addition, learners need to have clear clinical reasoning that will help in enhancing decision-making and problem-solving abilities. This paper describes the aspects of health training in security-challenged environments. A desk research of scholarly evidence was embarked on through internal and external desk reviews of existing scholarly literature. The search terms were security environment, health professionals, risky environment, health risk and military training. The research question was, 'How is training of health professionals in a security environment?' Content analysis was then done to examine the content, themes and opinions in regard to health training in a security environment.

The findings highlighted the experiences of training health professionals in a security setting. The study findings revealed that regular refresher training through simulations is important in ensuring the retention of knowledge and skills. Further, exposing the learners to risky environments using realistic combat scenarios is essential to validate what the students have learned through practical, real-world applications.

Keywords: *Security environment, Health Professionals, Risky environment, Health risk, military training*

Introduction

The statement by Orson Scott Card that "The essence of training is to allow error without consequence" underscores the importance of training. This is to avert the consequences that would otherwise be detrimental should one be faced with a situation requiring a particular skill or knowledge about. In healthcare, training aims at preventing morbidity and mortality. Besides the mandatory training that addresses statutory requirements as guided by regulators' requirements, the type and level of training required varies depending on factors such as the type of care offered, and the care provider's role and responsibilities. For instance, using evidence-based practice in healthcare is crucial in ensuring optimal practices and secure patient outcomes. This is because it stimulates critical thinking and informs decision-making (Krugman, 2003).

The environment in which the military operations take place is often characterized by unpredictable and ambiguous situations that place demands on military personnel. In combination with high levels of violence and threat, these situations elicit acute stress reactions, which can impair performance and the ability to operate effectively. Effective training practices are therefore essential to prepare military medical personnel for the demands of these challenging situations (Fletcher & Chatelier, 2000). The military has been found to be vibrant in training, equipment and advanced technology (Macharia, 2016).

Military health professionals in this discussion paper refer to healthcare service providers within the military establishment otherwise known as "Combat medics". They are both soldiers and professional healthcare providers, most of whom choose to enroll into the military as operational specialties. Others undertake medical training either from a basic entry-level or advanced (specialization) level from within the military rank and file. Either way, they are charged with the responsibility of healthcare service provision to the service members and their dependents both in peacetime locations and during combat.

A security environment is an austere environment in which there is considerable degradation or denial of access to electricity, clean water, fixed or portable medical facilities, diagnostic and therapeutic supplies, and medical professionals for extended periods. When evacuation or mission requirements exceed current capabilities to deliver such care, this environment may offer a need to provide patient care for lengthy periods of time (Butler et al., 2017). There has been very little work done to describe health training in a security environment. Though the focus of this

discussion paper is on service provision in a combat environment, it is worth noting that training of these personnel takes place in a non-combat environment, underpinning the importance of simulation of combat setting to optimize preparedness (Gibson et al., 2022; Kaufman et al., 2000).

To succeed in training, health systems need to be strengthened in order to achieve the intended objectives of promoting public health initiatives. Owing to complexities in field training for health professionals especially in a security environment, hands–on experience is critical (Burkett & Aguirre, 2020). Sufficient health workforce and infrastructure is essential in ensuring quality care, especially in crisis situations (Winkelmann et al., 2022). Health professional training instititions in low and middle income countries face various limitations which include staff shortages, lack of equipment and other training materials and poor funding (Cancedda et al., 2015). With this dearth, innovative ways of training plays a critical role in enhancing quality training despite the existing challenges.

Digital infrastructure in the current times is critical with the advent of technology. With digital training, it is possible to reach many health professionals in various settings even in the war zone areas or remote areas where physical resources may be limited. In addition, health professionals irrespective of their location need to get up-to-date information and are also required to have continuous professional development. These digital platforms play a key role. Some of these digital platforms could be self-paced courses, thus the individual can do them at their convenience. Considering that military health professionals may not always be in a peacetime location, the self-paced courses are fundamental.

This paper therefore brings a discussion on key aspects considered in health training in security. It also includes the challenges experienced during the training.

Aim of the study

This study aimed to explore the following areas of training in a security environment:

i. Medical military training
ii. Pre-deployment preparation
iii. Technological advancements
iv. Challenges encountered during training

Theoretical framework

The discussion in this paper is supported by two theories; theory of reinforcement and theory of experiential learning.

The theory of reinforcement lays emphasis on a person's learning behaviour and suggests that the learner repeats the behaviour so as to have a positive outcome. This theory was proposed by Skinner and suggested that training programs need to be aligned to organizational objectives. In return, once a person has a reinforced behaviour receives a reward.

The theory of experiential learning will also be utilized in the discussion. This theory was described by David Kolb (Cherry & Lehman, 2022). He describes that the needs and wants of the learner are addressed by experience. With experience, a person gains competence and is able to do a self-evaluation. This theory proposes two ways of gaining experience; abstract conceptualization and concrete thinking. In addition, it proposes two ways of transforming experience, which are active experimentation and reflective observation.

In training, healthcare professionals participate in the learning process and require constant repetition to achieve the expected outcomes. In addition, they have to gain experience so as to competently offer services. Health professionals are largely trained on skill acquisition, therefore repetition and gaining experience are critical in achieving competence which will lead to confidence in practice. Using the theory of reinforcement, the initial training starts with the use of mannikins before moving to real human beings. This will allow the learner to gain exposure, thus being less harmful to society.

Methodology

A narrative literature review through internal and external review of existing scholarly literature was done. This method was appropriate because it is inexpensive and data can be obtained quickly and be used as a benchmark for a research process. The research question was 'How is the training of health professionals in a security environment?' This was later refocused to military training. The search terms were security environment, health professionals, risky environment, health risk, health training and military training. A total of seventeen articles were reviewed after excluding sixty-nine articles for not meeting the inclusion criteria. The inclusion criteria were that the articles needed to be focused on military set-up training and be aligned with the aim of the study. Content analysis was done to examine the content, opinions and attitudes in relation to health professionals

training in a security environment. The databases used for the search were Biomed Central, Google Scholar and PubMed Central. The reviewed articles were retrieved from the databases as follows:

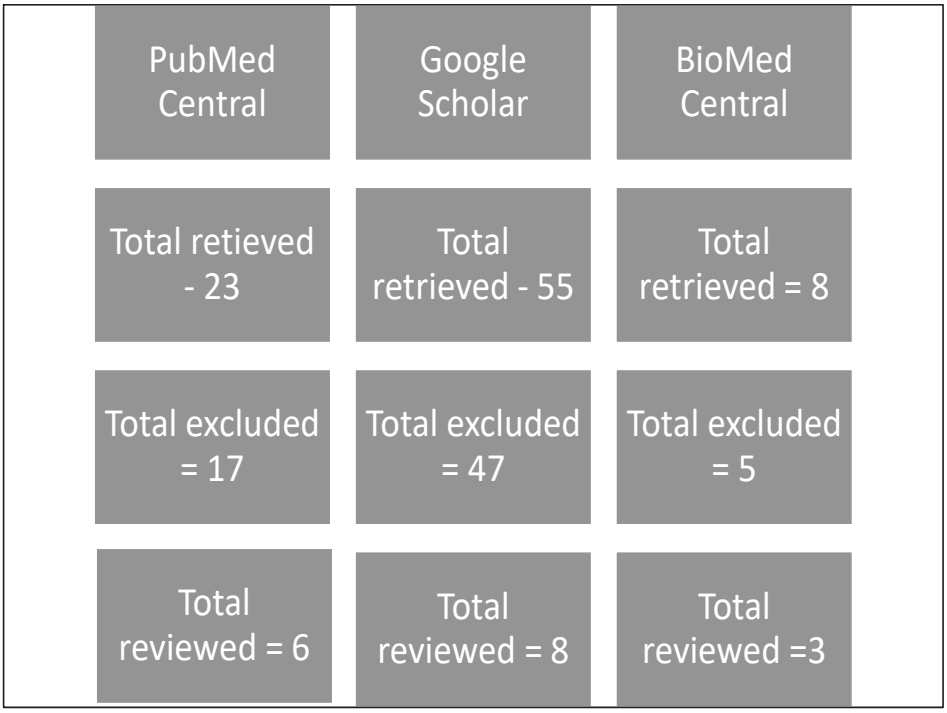

Figure 1: Article selection

The descriptive review highlighted the experiences of training health professionals in a security setting. Although there is limited time, the process of conducting the review was rigorous, and this method was suitable for this paper to achieve immediate results that could inform the needed preparations for medical military training. Seventeen references were reviewed. Except for two that were published in 2000, the rest were published between 2017 and 2023. The limitation of accessing the required information was the scarcity of empirical literature on the subject matter of the study.

Discussion

Based on the literature reviewed, the findings are discussed under the following sub-headings; military medical training, technological advancements in training, pre-deployment preparation and challenges experienced during training.

Military health professional training

The medical military personnel play a critical role in defending and stabilizing the country. Besides, they offer medical care to the injured soldiers and their families. Their medical education includes catastrophe assessment, diagnosis and treatment of harms and emerging and re-emerging disease prevention including mental health care. With the emerging and re-emerging health happenstances like COVID-19, there is a need for extreme preparedness of medical military personnel to effectively respond to these health challenges.

Due to the unpredictable and occasionally brutal nature of war, combat medics need to consider uncontrollable elements. These include incoming hostile fire, contact with enemy forces, darkness, resource shortages and extended evacuation times. In addition, there are casualty transportation issues, command and tactical decisions affecting health care, extreme environments, and provider experience levels. These challenging situations require high-level training for the military medical personnel as opposed to what they are trained on in the civilian setup. This therefore means that the medical personnel need to be knowledgeable about the variations in tactical settings. They also need to be trained on how they can treat injuries in combat settings and safely transfer combat patients. They should learn to focus on rapid actions that address preventable causes of death until the tactical situation supports more thorough medical care (Chapman et al., 2012).

Areas that need to be covered in medical training include physiology, first aid, knowledge of weapons used in combat, pain management and documentation such as leadership (Raeeszadeh et al., 2022). These medical personnel need to understand the principles of war surgery, how bullets work, the body's response to such, and how to overcome the harm from weapons. This shows the need to expose the trainees to such environments during training to gain experience. The military health professionals may also be deployed to provide non-medical services which may include administration and management (Rhon et al., 2022). With this view, the training should fully equip the trainees for such occurences.

Some of the specialities trained in a military set-up include cardiopulmonary and electroencephalograph (EEG) technicians, dental specialists, medical care technicians, medical laboratory technicians, medical record technicians institution service technicians, optometric technicians pharmacy technicians physical and occupational therapy specialists radiological (X-Ray) technicians, counsellors and social workers. These, having undergone military training are trained specifically to provide care in the military, particularly in combat settings. This means therefore that once trained, it is necessary to retain their skills as they are able to function as armed professionals.

Other than providing routine care to service members, their families and veteran officers, the military health professionals also provide care to their colleagues during wartime. Some of the injuries which may not be common in a civilian set-up include trauma related to gunshots, burns, wounds resulting from chemicals, musculoskeletal injuries and infectious diseases which could arise from their areas of deployment. Such injuries have a direct impact on deployment and, thus should be handled with extreme caution and with a high level of experience.

During training, several approaches including theoretical and practical sessions and teamwork especially in trauma management. This was seen in Norway's military medicine while in the Swedish military education, there is a combination of academic medical skills and the culture of military training (Sonesson et al., 2017). One of the challenges experienced by trainees is a balance between theory, practicals and research. In most health professional programmes, the content tobe covered is a lot and in most cases there is competition for time. This may also mean that the learners are always busy to meet the course requirements. This therefore means the learners need a lot of support so as to go through the programme without becoming mentally stressed. To avoid such, it calls for the trainers to be innovative in their teaching, making sure that the learners achieve the intended goals.

International collaborations in education and training have been found to be successful in military medical education. These collaborations may also include civilian institutions. Some of the courses that the students can benefit from international collaborations and exchange programmes are Battlefield Advanced Trauma Life Support (BATLS), Advanced Trauma Life Support (ATLS),

Military Operation Surgical Training (MOST) and Definitive Surgical Trauma Care (DSTC) (Sonesson et al., 2017).

Feedback is crucial to determine the quality of medical training provided. As a result, continuous monitoring and evaluation of programmes is required to keep quality checks in control. Moreover, feedback helps to improve the delivery of the training since all players share their feedback in the course of the training. The players are students, faculty, clinical mentors and other stakeholders including potential employers, programme regulators and the Ministry of Health. Several ways are used to obtain feedback during training. Some of these ways include anonymous course evaluation by learners, peer –to-peer evaluation, clinical evaluation forms and programme evaluation. Top down approach is also used to evaluate the programme. This could be done through assessment of goals set during the year on whether they were met or not.

Technological advancements in military medical training

Technological advancements in medical training, coupled with military setting render the training increasingly complex, as such calling for innovative approaches to training. Many technologies have been developed for military training and these are also applicable in civilian settings (Fletcher & Chatelier, 2000). Globalization and the introduction of technologies like e-health or telemedicine call for technological advances both in classroom teaching and clinical site placement teaching to ensure that the trainees are at par with the evolving and dynamic medical care. The military has always been at the forefront in leading innovations and inventions, thereby adaptability of technology in training may not be a challenge. Military training encompasses research, which has facilitated advances in health care including vaccine development and preventive medicine (Leone et al., 2023). An example of advancement in military medical training is the enhancement of tactical simulators which produce a more real-life scenario for trainees (Thompson, 2022). In addition, modern technologies enable the trainees to prepare for a real-world scenario.

Other technologies that are changing the world are robots, artificial intelligence and information technology. In addition, virtual reality and simulation technologies can also be utilized. Scenarios can be simulated to give a real life picture to the learners, thus lead to a better understanding of the

content. These technologies will not only change classroom teaching but also field training to ensure the trainees are well-versed and can competently use the technologies (Billing et al., 2021). These technologies in the health sector enable healthcare professionals to provide remote care. With this aspect of technological advancement, it is clear that the training of healthcare professionals needs to be upscaled to meet such emerging trends.

Before COVID-19, there was very little adoption of technology in the provision of care to patients. Due to restrictions of movement and social distancing, e-learning technology, including telemedicine was adopted. Telemedicine has increased access to health care as a patient may comfortably access the services of a specialist who is far away (Quinn et al., 2022). During training, the trainees are exposed to these technologies so as to gain competence and be able to utilize them in the course of their profession. The accessibility of such technologies through simple gadgets like mobile phones makes it easy to access in whatever setting that the trainee may be in without requiring the physical presence of a teacher.

Pre-deployment preparation

Optimal preparation for health professionals includes exposure to combat situations before deployment (Suresh et al., 2021). The aim of this is to enable them to have a clear understanding and effectively provide service in these settings. In the United States of America (USA), Texas, a Tactical Combat Medical Care (TCMC) course was developed to prepare the providers for deployment in combat units (Holloway, 2016). TCMC is a pre-hospital wartime training that enables health care providers to supplement their basic training with field experiences (Holloway, 2016). Pre-deployment preparation is a cycle that involves the environment, behaviour, jointness and mission readiness. It involves training and re-training of the personnel in order to sustain peace support operations (PSOs), and also optimizing nursing care during PSOs. Jointness involves the various services so that they work together for the common good.

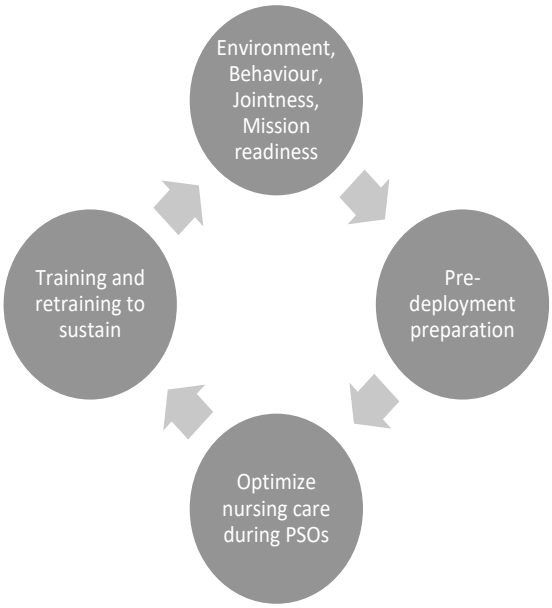

Figure 2: Pre-deployment preparation

Adapted from (Jumat et al., 2014)

Despite improvements in military field hospitals, many armed conflicts still take place under austere (harsh) conditions, especially in low-income countries. Depending on the physical environment and tactical considerations, military medical specialists need to prepare themselves and their teams for the most likely eventualities (Anagnostou et al., 2020). The routine medical treatment provided in peace-time locations does not produce the qualified medical workforce needed to care for patients during conflicts and deployments. In deployed environments, clinicians require broader skills than they do while practising as sub-specialists in military treatment facilities during peacetime. For instance, the lack of obstetrical or pediatric services required during deployments may force obstetricians and paediatricians employed in military medical facilities to function as general surgeons (Hutter et al., 2019).

Lessons learned from "Operation Desert Storm " indicate that clinical expertise and military tactics complement each other (Hutter et al., 2019). Operation Desert Storm was a military operation that was aimed at expelling the Iraqi forces from Kuwait and it happened 25 years after the first Gulf war. The lessons learnt from Operation Desert Storm include the need for constant training,

preparation for uncertainty, and the need to minimize casualties, which is affected by operational effectiveness. It is crucial, therefore, to take a structured strategy to enhance trauma care for combat and non-combat injuries that includes injury prevention, acute care, rehabilitation, and return to duty (Hutter et al., 2019). Military operations frequently face threats from their physical environment such as hostile fire, darkness, extreme weather, and health-related issues. As a result, periodic and pre-deployment skill assessments should be conducted to determine the type of training that is needed for each operational environment (Anagnostou et al., 2020). Borrowing from the theory of experiential learning, this phase is very critical in moving a health professional from a novice to an expert.

Gaps develop because standard medical care for military personnel and their families, including obstetrics, chronic illnesses, and metabolic disorders, is typically provided at medical treatment facilities. In addition, deployments frequently result in a variety of problems, including trauma, burns, infectious infections, musculoskeletal injuries, and chemical agent-related wounds (Hutter et al., 2019). In one of the studies, participants indicated that inadequate pre-deployment preparation was a detrimental aspect of their experience (Moore et al., 2020).

Challenges experienced in training

There are a vast of challenges experienced since this is a specialized training that goes beyond peacetime but also includes war zone training.

One of the challenges in military medical training is the limited number of experienced personnel as compared to the number of trauma patients received. This poses a greater challenge to the existing personnel because the available personnel will concentrate on providing care to the patients, thus training may be compromised (Sonesson et al., 2017). A study in South Africa established that nurses reported were not adequately prepared for deployment in mission fields as they felt they had deficiencies in training as compared to their counterparts (Jumat et al., 2014).

Limited opportunities, particularly the education and training opportunities which could provide a blended learning approach are lacking. The blended learning approach uses digital media and technology in addition to traditional teaching and therefore is a mix of online and face-to-face sessions. Lack of these opportunities impacts negatively on the training as it could contribute to

less competently trained personnel who may lack the confidence to operate in such situations. In military training, the successful implementation of the blended mode of learning requires further discussion (Henkel, 2017). There is a need to ensure the presence of effective technology, particularly in developing countries where access to such resources is limited. It should be appreciated that education methodologies change over time and the adoption of advanced technologies is critical to enhance the quality and efficiency of training.

The military training is tailored to health mission, and not to a specific county's health outcomes (Burkett & Aguirre, 2020). In this case, upon completion or training, the military health professionals may be posted to provide services outside the country as per their mandate. This affects the achievement of strategic impacts as there is a lack of specificity thereby the focus will be on direct patient care rather than a comprehensive approach, which has better outcomes (Burkett & Aguirre, 2020). Considering the obligation of the military personnel, a comprehensive approach, despite its positive impacts may be difficult to implement as a result of the nature of their operations.

The lack of locally available resources has resulted in the importation of training resources, which has proven to be costly. Thus affecting the quality of training offered to the trainees. To prevent mortality and morbidity from the significant amount of trauma sustained during operations, the medical force must be organized, trained, and equipped to treat combat-related illnesses and injuries before deployment (Moore et al., 2020). Having Combat Support Hospitals at various levels during combat calls for prior preparation of medical staff and nurses through training on Tactical Combat Casualty Care (TCCC). TCCC is the standard care provided to victims in the battlefield before reaching the hospital. The course entails training on providing care under fire, in the field as a first responder when there is no longer hostile fire and evacuation of the injured persons (American Course on TCCC, 2022). This training will enable the health care professionals to effectively administer first aid and evacuate casualties while minimizing further trauma. Managing the severely injured patients in the battle field within the golden hour may be applicable during operations other than war. In war fighting, this concept is often constrained by the tactical situation on the battlefield, which include time, distance and unsecure environement. The battlefield casualty's chance of survival may be limited if the golden hour concept is not handled. However, the patient may improve significantly after arrival at a field hospital. Military constraints

limit how far forward hospital surgical facilities can be deployed. Every medical training should provide skill on ensuring the medical personnel possesses the basic skills to keep casualties alive at the war front until they reach a surgical facility. The correct application of Battle Field Advanced Trauma Life Support training provides life support principles, particularly in an austere and potentially hostile environment with limited equipment and diagnostic aids, that will enable saving of lives.

Emerging diseases for example COVID-19 pandemic posed a great challenge to the training of health professionals not only in the civilian set-up but also in the military (Quinn et al., 2022). Emerging diseases, which are highly infectious pose a great challenge since the military professionals stay together in camps thus spread of infections is likely to be very high. This calls for extreme caution whenever there are disease outbreaks that could easily spread.

To gain experience, trainees acquire skills from both military and non-military environments. This may lead to decreased exposure to the unique military medicine and thus become disadvantaged eventually when they are posted to work in the military settings (Quinn et al., 2022). In addition, not only are the health professionals expected to gain competency in health matters, but they are also to retain their military skills (Quinn et al., 2022). This means they need to create time for training that focuses on military competencies to ensure retention of the skills. These training lay emphasis on the military culture and operations.

Conclusion

Education and training in a security environment can be sustainable. Training health professionals is critical to ensure competency in the provision of care. Military healthcare professionals are trained competently to provide services both in civilian and military settings as well as in peacetime and war zones. Although faced with challenges, military medical training is unique and requires unique approaches and resources to achieve the intended competencies. Technological innovations have been adopted to advance military medical training. A blended approach of learning which combines both face-to-face and digital technologies is a great approach to support learning. The challenges encountered in the training of health professionals in a security environment vary from limited opportunities for blended learning, lack of resources including

training equipment, lack of well experienced trainers, emerging diseases and limitations in utilizing collaborative approach in provision of care.

Recommendations

High-level preparations need to be undertaken before rolling out military health professional training to ensure effectiveness and high-quality training.

There is need to outsource or tailormake locally training materials that could bring familiarity to the trainees and be utilized for training.

There is a need for advanced technology to enhance the training of military health professionals who will practice competently in diverse settings.

Development of curriculums that take into consideration of the unique nature of the military environment and deployment is critical.

The medical personnel need to be equipped with tactical skills that meet mission requirement in combat situations.

There is need to consider the appropriate training equipment for combat similation which is a challenge especially in developing countries.

The authors recommend qualitative research such as ethnographic research to understand the military culture and how it informs and influences medical practice in combat setting. In addition, there is a need for phenomenological studies that would inform future preparations and operations in austere environments.

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