4th ICMM PAN-ASIA PACIFIC CONGRESS ON MILITARY MEDICINE

12-15 October 2018, Tehran
IRIB International Conference Center

CONGRESS ABSTRACT BOOK

Appendix

VIRTUAL POSTER

October 2018
The Future Horizon of Military Medicine

APPENDIX
ABSTRACT BOOK

VIRTUAL POSTER

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Supervisor: Dr. Reza Mohammadi
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Virtual Poster
CBRNE
Novel Biological Threats to the Military  
Ali Karami*

* 1- Professor, Baqiyatallah University of Medical Sciences - karami@bmsu.ac.ir

Rapid development of biological sciences like in molecular biology, molecular genetics, molecular microbiology, biotechnology, genetic engineering, novel recombinant DNA technology like gene editing, synthetic biology or system biology, cyber genetics and manipulation of biological agents has created tremendous concern on development of novel harmful recombinant and chimeric bioagents that will be able to make serious threats to the public and most importantly could be used as weapons of mass destruction, biological weapons or bioterrorism agents. We are continuously monitoring the latest research and developments in these areas not only in the military research institutes but also in public and private research laboratories to observe any misconduct and misuse of bioscience deliberately or with no harmful intentions by the researchers. Our research reveals that there is numerous evidence on non-peaceful research that can be abused as novel biological agents or toxins with possible military applications or bioterrorism or agroterrorism or cyber terrorism. In this presentation we will provide numerous documents and references from military or public research organizations and laboratories that provide concert evidences that there are non-peaceful activities to develop novel biological agents by using the most advanced gene editing technologies or gene manipulation methods on viruses, bacteria, and toxins that might be used as biological threats against military personnel.

**Keywords:** Gene Editing, Synthetic Biology, System Biology, Novel Biological Agents, Bioweapons, Bioterrorism
Molecular detection of Ricin and Abrin Gene, Using Polymerase Chain Reaction (PCR)

Ali Karami¹, Morteza Hamedi Behnaq²

* 1- Professor, Baqiyatallah University of Medical Sciences - karami@bmsu.ac.ir
2- M.Sc., AJA University of Medical Sciences, Tehran Iran - alikarami1@yahoo.com

Introduction: Ricin and Abrin are two highly cytotoxic proteins that have plant sources. High lethality in contrast to low cost and easy access to plants and seeds lead to the usage of these toxins in crimes and terrorist acts. Because obtaining purified toxins requires advanced laboratory equipment and complex procedures, it appears that the perpetrators of such crimes have to use crude extracts. As a result, remaining of specific toxin genes in these extracts take the advantage of using PCR to identify Ricin and Abrin gene that refer to existing of their toxins. In this study, we use new rapid molecular method for Ricin and Abrin Gene detection by PCR.

Methods: We designed specific primers for detection of Ricin and Abrin toxins gene by PCR. DNA was extracted by CTAB-PVP method from castor beans and Rosary pie samples and PCR protocol was performed using primers for each toxin gene separately. Then we analyzed for determination of specificity and sensitivity by standard methods.

Results: The result of this study revealed that the designed and selected primers’ sequence for each gene is specific for each toxin. The desired products’ size was obtained and sequencing of PCR products was performed that showed up to 90% similarity with the reference gene. PCR sensitivity assessment was performed by using serial dilution method.

Conclusion: According to these results, this method for detection of Ricin and Abrin toxins gene is sensitive, specific and low-cost to detect these very important biological toxins gene in cases of suspected bioterrorism events.

Keywords: Ricin, Abrin, PCR, RIP
The passive defense has been one of the most effective and sustained methods of defense against threats in most countries of the world. Introduction of Biological Factor Identification Equipment for the rapid alert to provide information to the Quick Alert Committee to help identify equipment for identifying biological agents. For this reason, the introduction of biomedical identification devices for the rapid alert is required as a guide to the Quick Alert Committee. **Methods:** In this study, the study of the experiences of the country and the world was studied using the biologic factors diagnostic articles in the United States and the United Kingdom. **Results:** Biological diagnostic systems are currently under investigation and undergo developmental stages. There are commercially available devices that are limited in use and are generally costly. Because of these limitations, it is suggested that quick warners think about designing better equipment.

**Keywords:** Biological Threats, Rapid detection
Biological Threats of Terrorist Groups in the Middle East and Passive Defense Measures to Reduce Vulnerability

Ali Karami

* 1- Professor, Baqiyatallah University of Medical Sciences - karami@bmsu.ac.ir

The threats to modern war zones, namely biological, chemical, nuclear and radiological, are among the new threats in the world, especially in the region. Considering the high cost and technology of acquiring nuclear and radiological weapons, as well as the need for complex technical equipment for the production of chemical weapons, it needs the terrorists in the Middle East to capture the chemical plants of Syria and Iraq and take action. They have used it against the people and may still be used, but the more serious risk is the information that shows that these terrorists are pursuing to make a variety of biological weapons and even have experimented them. Considering that the pro-war war against Islamic countries and the Islamic Republic of Iran is not successful, Iran's defense and military capability is higher than it is to attack Iran through the common military and conventional military equipment, thus seeking to hurt the regime and the country and The destruction of the Shiites of Iran with the use of biological weapons, bioterrorism, agroterrorism and other new threats, and the extremely complex and unknown factors that the Zionist regime provides them with. Very unknown chemical, hormonal, synthetic, manipulated and even agricultural products, foods and medicines and cosmetics, and all kinds of snacks and spices...

**Keywords:** Biological Threats, Middle East, Terrorists
Therapeutic Effects of Betamethasone and Diclofenac-Na on Sulfur Mustard-Exposed Meibomian Glands in Rabbit

Gholamreza Kaka¹, Jadidi Khosro², Seyed Homayon Sadraie³, Mostafa Naderi⁴, Zandi Ahmad⁵

* 1- Associate Professor, Neuroscience Research Center, Baqiyatallah University of Medical Sciences - gh_kaka@yahoo.com
  2- Assistant professor, Eye Department, Baqiyatallah University of Medical Sciences - jadidi@bmsu.ac.ir
  3- Assistant professor, Anatomy Department, Baqiyatallah University of Medical Sciences - h_sadraie@yahoo.com
  4- Assistant professor, Eye Department, Baqiyatallah University of Medical Sciences - naderi@bmsu.ac.ir
  5- Medical Student, Baqiyatallah University of Medical Sciences - Zandi.Ahmad@yahoo.com

Introduction: The study aimed to investigate therapeutic effects of topically applied Betamethasone (B), Diclofenac-Na (D) and their combination (BD) on meibomian glands exposed to sulfur mustard (HD) by clinical and histopathological evaluations.

Methods: Rabbits were divided into six equal groups: Normal, solution and HD groups and three drug-treated groups included B, D and BD-combined treated groups. In all drug-treated groups, the drugs were used three times a day. Examination of the eyes was done by ophthalmologists. Parasagittal sections of rabbit’s eyelid were prepared for histopathological evaluation.

Results: The number of meibomian gland cells significantly decreased in HD group in comparison to other groups. The histopathological finding of the present study revealed the severe necrotic changes of meibomian glands in the HD group but these changes have not been seen in the normal group. Necrotic changes of the meibomian glands were much reduced in three drug-treated groups, especially in the B-treated group. On the other hand, application of the Betamethasone alone was better than D alone or combined B+D on meibomian glands lesions following HD exposure.

Conclusion: The results showed that HD caused dysfunction and necrosis of meibomian glands. Use of Betamethasone alone had more protective effects than D and combined BD on meibomian glands lesions following HD exposure.

Keywords: Sulfur Mustard, Meibomian Glands, Betamethasone, Diclofenac-Na
Preparation of Colorimetric Nanoparticles by Using Thiocyanate GNPs in the Presence of Ferrite Ion for Applying in Vibrio Cholera Biosensor

Khadijeh Eskandari

* 1- Assistant Professor, Nanobiotechnology Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran - kheskandari@alumni.ut.ac.ir

Functionalizing and modified gold nanoparticles (GNPs) is a new attitude to improve colorimetric detection method and it is widely applied in different fields especially in biological and medical diagnosing. Different ions can be attached to GNPs to change the sensitivity of the signal peaks. Among different offering anions and cations, thiocyanate was preferred to follow further steps. The most important reasons for choosing gold nanoparticle compounds are to have simple preparation steps apart from high sensitivity and selectivity, and there is no need in using expensive tools to get the data. It can be even observed by the naked eye. All of the data were assayed through UV-Vis spectroscopy, DLS zeta-sizer, FTIR, SEM and TEM microscopy. The main aim of this study is designing a new low-cost and sensitive colorimetric nanoparticles probe with simple treatment steps to follow. In this work, gold colloids incorporated thiocyanate and modified magnetic nanoparticles were investigated to detect a biological agent in the presence of colorimetric ions.

**Keywords:** Gold Nanoparticles, Thiocyanate, Vibrio Cholera
The Effect of Education of Hospital Incident Command System on the Preparedness of Nurses in Nuclear Accidents in Military Hospitals of Mashhad

Abass Mottaghian Nejad\textsuperscript{1}, Fahimeh Dadgar\textsuperscript{2}, Zahra Farsi\textsuperscript{3}

* 1- Senior Expert of I.R. Iran Police Force - a10721348am@yahoo.com
2- dadgary.fahimeh@yahoo.com
3- zahrafarsi@gmail.com

Introduction: According to the important role of nurses in facing the nuclear disasters, a precise program is crucial. Today, HICS is a common program to manage the facilities and human resources in disasters. The aim of this study was evaluating the effect of education of HICS on the preparedness of nurses in nuclear accidents in military hospitals in Mashhad.

Methods: This was a semi-experimental study that was conducted in military hospitals in Mashhad in 2017. Eighty-three participated nurses were divided into two groups randomly. The test group was provided with a two-day educational workshop of HICS and round-table maneuver on the way of facing the nuclear disasters. However, the control group had no intervention program. The amount of education effect was compared in three stages (before, a week and a month after the intervention), using a checklist and a researcher-made questionnaire. The knowledge and view questionnaire reliability was assessed by test-retest (r: 0.877) and checklist validity was set by the academic professors’ agreement (r: 0.88). We used the SPSS version 21 (SPSS, Chicago, IL) to perform the statistical analysis. Results were analyzed using independent t student, Fischer, and ANOVA. Differences were considered statistically significant when P < 0.05.

Results: There was no statistical difference between the two groups of study in demographic characteristics and preparedness before the intervention. The average scores in nuclear accidents nurse preparedness in the control and experiment groups a week post-intervention were 144.88 \pm 20.1 and 165.46 \pm 17.11, and one-month post-intervention were 170.32 \pm 16.7 and 151.64 \pm 19.21, respectively. This difference was statistically significant (p = 0.001). In the control group, the average score before the intervention was 138.83 and increased to 151.64 during the assessment.

Conclusion: Our results revealed that HICS may improve the preparedness of nurses during a nuclear crisis. Continuous education of HICS to nurses is necessary in hospitals.

Keywords: Nurse, Preparedness, Nuclear Events, Hospital Incident Command System (HICS)
Mutations of Exons 5 and 6 in Tumor Suppressor Tp53 Gene in Victims of Chemical Weapons

Shahnaz Tofangchiha1, Moeen Bonak Dar2, Mohammad Hasan Tajadini3, Mahyar Nourian4

1- Associate Professor, AJA Cancer Epidemiology Research and Treatment Center (AJA-CERTC), AJA University of Medical Sciences, Tehran, Iran - stofangchiha@yahoo.com
2- AJA Cancer Epidemiology Research and Treatment Center (AJA- CERTC), AJA University of Medical Sciences, Tehran, Iran - Moeenbonakdarmf@gmail.com
3- Assistant Professor, Biotechnology Department, Applied Physiology Research Center, Isfahan University of Medical Sciences, Isfahan, Iran - Mohamadhasantajjedini@gmail.com
* 4- AJA Cancer Epidemiology Research and Treatment Center (AJA- CERTC), AJA University of Medical Sciences, Tehran, Iran - mahyarnourían1369@gmail.com

Introduction: Chemical weapons are non-conventional weapons that Iraq widely used them despite their legal prohibitions. Mustard gas is a potent alkylating agent which affects DNA and is expected to increase the risk of cancer. P53 is a well-known tumor suppressor protein which plays a role as an apoptosis factor. The mutant forms of P53 usually lose their function and P53 mutations are considered as the most common genetic change in human cancers. According to the effects of P53 gene defects and mutations in the development of cancer, we evaluate mutations of exon 5 and 6 of the P53 gene in a group of victims of chemical weapons.

Methods: In this study, we evaluated and explored the mutations of the P53 gene by HRM Scanning method on Iranian victims of chemical attacks referred to 501 Hospital in Tehran during 2015. Data were collected by a questionnaire and genomic DNA was extracted from peripheral blood samples. The melting pattern of the desired sequence was analyzed by high resolution melting analysis and overlapping amplicon technique. The final results were statistically analyzed by SPSS 19 software.

Results: Thirty-three patients were enrolled in the chemical group. 37 healthy individuals were considered as the control group. All participants in the study were male. Three cases of the patients group were found with mutation; two cases in exon 5 and one case in exon 6, and no mutation was seen in the control group.

Conclusion: There was a significant relationship between the patient's condition (mutant or non-mutant) and lung cancer.

Keywords: p53 Gene, Mustard Gas, Chemical Weapons, Mutations, Genetic.
Investigation of Effects of Flexible Loop Deletion in Organophosphorus Hydrolase Enzyme

Gholamreza Farnoosh¹, Ali Mohammad Latifi², Kazem Hassanpour³, Hossein Aghamollaei⁴, Ramezan Ali Taheri⁵

¹- Assistant professor, Applied Biotechnology Research Centre, Baqiyatallah University of Medical Sciences, Tehran, Iran - Rzfarnoosh@yahoo.com
²- Associate Professor, Applied Biotechnology Research Centre, Baqiyatallah University of Medical Sciences, Tehran, Iran - amlatifi290@gmail.com
³- Associate Professor, Medical School, Sabzevar University of Medical Sciences, Sabzevar, Iran - drhassanpour@yahoo.com
⁴- Researcher, Chemical Injuries Research Center, Systems biology and Poisonings Institute, Baqiyatallah University of Medical Sciences, Tehran, Iran - aghamollaei22@gmail.com
⁵- Assistant Professor, Nanobiotechnology Research Centre, Baqiyatallah University of Medical Sciences, Tehran, Iran - r.a.taheri@gmail.com

Introduction: Thermostability improvement of enzymes used industrially or commercially would develop their capacity and commercial potential due to increased enzymatic competence and cost-effectiveness. Several stabilizing factors have been suggested to be the base of thermal stability, like proline replacements, disulfide bonds, surface loop truncation, and ionic pair networks creation. This research evaluates the mechanism of increasing the rigidity of Organophosphorus hydrolase enzyme by flexible loop truncation. The Organophosphorus hydrolase (OPH) has been used for degradation of organophosphorus chemicals that is one of the most frequently used decontamination methods.

Methods: Bioinformatics analysis revealed that the mutated protein retains its stability after loop truncation (Five amino acids deleted). OPH-wt and OPH-D5 activities were evaluated by monitoring the production of the p-nitrophenol (PNP), from paraoxon as the specific substrate. The thermostability of the wild-type (OPH-wt) and mutated (OPH-D5) enzymes were investigated by half-life, ΔGi, and Fluorescence and Far-UV CD analysis.

Results: The results demonstrated an increase in half-life and ΔGi in OPH-D5 compared to OPH-wt. These results were confirmed by extrinsic fluorescence and Circular dichroism (CD) spectrometry experiments, therefore, as rigidity increased in OPHD5 after loop truncation, half-life and ΔGi also increased.

Conclusion: Based on these findings, a strong case is presented for thermostability improvement of OPH enzyme by flexible loop truncation after bioinformatics analysis. Consequently, the results not only assist us
for better identification of the flexible regions in OPH by bioinformatics method but also promote our knowledge in engineering enzymes for industrial applications.

**Keywords:** Organophosphorus Hydrolase, Loop Deletion, Thermostability Improvement, Bioinformatics Design, Flexibility, Organophosphorus Compounds
New Methods for Detecting Microbial Agents

Seyed Amin Mousavi Nezhad*

* 1- Ph.D. Candidate of Microbiology, Alborz Province Police - mousavinezhad101@gmail.com

Introduction: The most important step of the treatment of microbial diseases is to quickly and accurately diagnose in the shortest possible time. The use of traditional biological threats in biological warfare, if not obsolete, can be claimed to be limited and diminished. Today, due to the difficulty of proper diagnosis and proper prevention, terrorists are more likely to use artificial biological agents (Designer gene) and new diseases (Designer Disease), and traditional diagnostic methods may not be able to detect such factors in a timely manner. Hence, the necessity of finding new diagnostic ways seems to be inevitable. The purpose of this review article was to review new methods for detecting microbial agents and compare them.

Methods: In this paper, we tried to investigate the latest diagnostic methods of microbial agents with the help of search engines and on valid scientific sites.

Results: Biological sensors are precise, sensitive and specific measurement systems that can measure the desired analytic at very low concentrations in biological samples. The use of diagnostic methods, such as the identification of microorganisms by using old methods such as cell culture and the detection of microbial metabolites, or the study of immunological responses of antigen and antibodies to novel pathogens, than DNA-based hybridization and sequencing methods were less efficient and very time-consuming.

Conclusion: Third-generation sequencing techniques, such as the use of nanopores in the manufacture of biological sensors, can be helpful in detecting the microbial agents used in modern wars with the least cost and in the shortest possible time, in comparison with other methods, although there are some limitations.

Keywords: Biological Warfare, Microbial Agents, Nanopores
Design and Manufacturing Nanobiosensors Fluorescent Bio-Barcode Based on Gold and Magnetic Nanoparticles for Rapid Detection of Shigella Species

Narges Elahi¹, Mehdi Kamali², Mohammad Hadi Baghersad³

* 1- MSc, Nanobiotechnology Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran - narges.elahi@ymail.com
2- Ph.D., Nanobiotechnology Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran - mehkamali@yahoo.co.uk
3- Ph.D., Applied Biotechnology Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran - hadibaqhersad@bmsu.ac.ir

Introduction: Shigella species are considered as one of the most important causes of diarrheal disease throughout the world. These pathogen infections are also known as one of the major threats to public health and are therefore reportable. It is estimated that 164.7 million people worldwide become infected by Shigella annually, leading to the mortality of 1.1 million people, mostly children under 5 years. Despite the different detection methods such as PCR-ELISA, multiplex PCR assay and so on, but a novel and accurate one is needed to detect this pathogen faster. We could achieve this purpose by fluorescent bio-barcode DNA assay.

Methods: In this study, the gold and magnetic nanoparticles synthesized at first. Then the Au NPs and the MNPs were conjugated with second DNA probe, fluorescein-labeled barcode DNA and the first DNA probe respectively. After mixing the nanoparticles with the 1st target DNA, the sandwich structure (MNPs-2nd DNA probe/Target DNA/1st DNA probe-Au-NPs-barcode DNA) was formed. Using the magnetic fields, the sandwich structure was separated from the unreacted materials. Finally, the barcode DNA was measured by fluorescence.

Results: Because the Au-NPs have a large number of barcode DNA per DNA probe binding event, the assay would take place with the high accuracy. The design of nanobiosensor is capable of measuring various amounts of genomes (3-200 ng/ml) of different Shigella species. The least range of sensitivity was reported as 2 ng/ml.

Conclusion: Due to the quick outbreaks of Shigella, the rapid detection of this pathogen is important and necessary. The design of nanobiosensor could resolve this problem completely due to the high accuracy and sensitivity. Therefore, this nanobiosensor is suggested as an appropriate detection technique.

Keywords: Shigella, Magnetic NanoParticles (MNPs), Gold Nanoparticles (AuNPs), Sandwich Hybridization
The Potential Application of Nanobiotechnology in Military Medicine

Hossein Aghamollaei¹, Gholamreza Farnoosh²

¹- Ph.D., Chemical Injuries Research Center, Systems Biology and Poisonings Institute, Baqiyatallah University of Medical Sciences, Tehran, Iran - aghamolaei22@gmail.com
²- Ph.D., Applied Biotechnology Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran - rz.farnoosh@yahoo.com

Nanotechnology is science, engineering, and technology conducted at the nanoscale, which is about 1 to 100 nanometers. Several advantages of having access to materials on this scale include a drastic increase in surface area to volume ratio, and the ability to create new and novel shapes of particles. These advantages introduced these materials as a suitable candidate for the development of medical devices and technologies. The most important application of nanobiotechnology in military medicine is drug delivery systems and tissue engineering. This technology introduced several solutions for big challenges in military medicine including effective vaccination, wound healing, control of infections, prevention of hemorrhage, and treatment of injured tissues. In this review, we presented the potential application of nanobiotechnology in different aspects of military medicine.

Keywords: Military Medicine, Nanotechnology, Drug Delivery, Treatment
What Are Novichok Nerve Agents?

*Shahram Parvin\textsuperscript{1}, Ramin Karimian\textsuperscript{2}, Hossein Aghamolaei\textsuperscript{3}*

Novichok is a collection of nerve agents that were developed by Russia between 1971 and 1993. The name Novichok means "newcomer" in Russian and is referred to as the fourth generation chemical weapons. These agents are the deadliest nerve agents, and some of them are likely to be five to eight times as strong as VX and ten times as much as the Suman. They were designed as part of a former Soviet program called "FOLIANT". There are five types of Novichok for military usage that is Novichok-5 (A-232) as multipurpose. Novichok agents have not been used on the battlefield. These agents belong to the organophosphate acetylcholinesterase inhibitors, which inhibits the acetylcholinesterase enzyme which is required to break the neurotransmitter acetylcholine. This results in respiratory and cardiac contractions, and ultimately, death from heart failure or choking due to excessive fluid discharge that fills the lungs of the victim. The usage of certain medications, such as atropine, can block the receptors that prevent acetylcholine from poisoning. Of course, other drugs such as pralidoxime, obidoxime, TMB-4, and HI-6 are also prescribed.

**Keywords:** Novichok, Organophosphate
Passive Defense Measures to Confront the Health and Environmental Consequences of a Possible Nuclear Incident in Wars

Somayeh Azarmi¹, Maryam Azizi², Seyed Omid Khalilifar³

1- Msc, Aja University of Medical Sciences, Faculty of Nursing, Military Nursing Department - Azarmi1363@yahoo.com
2- Msc, Aja University of Medical Sciences, Faculty of Nursing, Psychiatric Nursing Department - m.azizi_411@yahoo.com
* 3- Ph.D., Aja University of Medical Sciences - omidkhalilifar@hotmail.com

Introduction: Attacking to a nuclear power plant in wars is a major nuclear threat for a nation's people. The release of large quantities of radioactive material causes irreparable damages to the health and environment. The passive defense is one of the fundamental pillars of national security and defense independence and peace and development of each country which can be used to confront various threats, and also lower the cost of enemy attack and increase the threshold of popular resistance. The purpose of this article is to familiarize the reader with passive defense measures against potential nuclear incidents caused by an attack on nuclear power plants in wars.

Methods: This study is a review article by searching the SID, PubMed, Iran Medex and Google scholar databases in the period of 2005-2018.

Results: Nuclear passive defense measures did not require the use of weapons. By its implementation, it is possible to prevent or reduce the financial damage to important military and civilian equipment and facilities and human casualties. Passive defense measures confronting health and environmental hazards caused by nuclear incidents comprise of three different areas: 1. Reducing vulnerability, 2. Increasing deterrence, and 3. continuing the necessary activities. This article describes the steps in each section in detail.

Conclusion: Regarding the potential nuclear threat from the enemy and the possibility of unforeseen incidents occurring in our country's nuclear facilities or at the nuclear facilities of neighboring countries, maintaining nuclear passive defense readiness is very important.

Keywords: Environment, Nuclear Incident, Passive Defense, Public Health, War
Seroepidemiology of Chronic Toxoplasmosis in Soldiers of a Garrison in Tehran

Minoo Shaddel1, Alireza Khoshdel2, Kamran Anoshirvani3

* 1- Ph.D., Department of Parasitology and Mycology, Faculty of medicine, Aja University of Medical Sciences - min_shad@yahoo.com
2- Ph.D., Department of Parasitology and Mycology, Faculty of medicine, Aja University of Medical Sciences - editor@jammonline.com
3- MD, Department of Parasitology and Mycology, Faculty of medicine, Aja University of Medical Sciences - k.anooshiravani@gmail.com

Introduction: The prevalence of Toxoplasma gondii, as a protozoan with a worldwide distribution, in veterans has been poorly studied, so the aim of this study was to assess the prevalence of chronic toxoplasmosis in soldiers of a garrison in Tehran.

Methods: The blood samples of a total of 244 soldiers from 01 Garrison in Tehran were collected, then specific questionnaires were filled by them. The samples tested for specific Toxoplasma gondii antibodies (IgG) by Elisa method. A positive IgG test was interpreted as a chronic toxoplasmosis. The relationship of jobs, blood types, education, blood or organ recipient, qualification of consumed meat or drink water, and residency of participants with the prevalence of chronic toxoplasmosis were statistically analyzed.

Results: Of 244 samples, 45 (27%) were positive. The positive chronic toxoplasmosis was significantly higher in persons with the consumption of unpasteurized milk, undercooked and juicy meat, and soil-related occupations (P < 0.05).

Conclusion: There were chronic toxoplasmosis in soldiers and the prevalence of toxoplasmosis especially chronic form was high. Therefore the infection of toxoplasmosis may be considered. According to the results, the consumption of meat, milk, and lack of hygiene in contact with the soil are important ways of transmission.

Keywords: Army, Toxoplasma gondii, Military
Evaluation of Corneal Parameters in Delayed Mustard Gas Keratopathy (DMGK) and Comparison with Corneal Scarring and Keratoconus (KCN) Patients

Shiva Bagheri1, Khosrow Jadidi2, Shiva Pirhadi3, Hossein Aghamollaei4

1- MSc, Vision Health Research Center, Semnan University of Medical Sciences, Semnan, Iran - shiva.om17@yahoo.com
2- Professor, Department of Ophthalmology, Baqiyatallah University of Medical Sciences, Tehran, Iran - kh.jadidi@gmail.com
3- Ph.D., Vision Health Research Center, Semnan University of Medical Sciences, Semnan, Iran - shv_prhd@yahoo.com
4- Ph.D., Chemical Injuries Research Center, Systems Biology and Poisonings Institute, Baqiyatallah University of Medical Sciences, Tehran, Iran - aghamolaei22@gmailcom

Introduction: There are about 5,000 people in Iran who are injured by chemical agents and almost 0.5% of them have DMGK. We performed this study to compare the anterior and posterior corneal surface parameters in severe DMGK, chronic corneal scarring and moderate KCN by Pentacam Scheimpflug.

Methods: This study included 20 eyes of each groups. DMGK group had not any previous surgery except punctual occlusion. Corneal tomography obtained from the Pentacam HR system. Sixteen parameters were evaluated from Belin/Ambrosio Enhanced Ectasia and corneal densitometry map indices of three groups.

Results: Interestingly, in DMGK superior steepening (75%), in corneal scarring irregular (55%) and in KCN inferior steepening (35%) also asymmetric bowtie with central steepening (35%) were more common patterns. The average of all evaluated rings and layers of corneal densitometry indices (8 parameters), progression index max and thinnest point were higher in DMGK group than KCN group (p < 0.001, p = 0.047, p = 0.005, respectively). Also, the front elevation at the thinnest location and maximum keratometry (front) in moderate KCN were significantly higher than severe DMGK and corneal scarring groups. In other parameters including progression index min, progression index average, ART max and back elevation at the thinnest location there were not any statistically significant differences between groups.

Conclusion: Topography pattern, corneal densitometry, progression index max, thinnest location, the front elevation at the thinnest location and maximum keratometry (front) were significantly different in three groups, although it is a primary research and needs more study.

Keywords: Sulfur Mustard, Cornea, Delayed Mustard Gas Keratopathy
Development of an Electrochemical Biosensor for Detection of Organophosphate Compounds Using Carbon Nanotube Modified Electrode

Amir Homayoun Keihan¹, Sharareh Sajjadi²

* 1- Assistant Professor, Molecular Biology Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran - ahkeihan@bmsu.ac.ir
2- Assistant Professor, Department of Biology, Roudehen Branch, Islamic Azad University, Roudehen, Iran - sajadi@riau.ac.ir

An amperometric biosensor for paraoxon, as a typical organophosphorus compound, has been developed based on inhibition of choline oxidase. Firstly, by composing multiwalled carbon nanotubes with the room temperature ionic liquid, a biocompatible nano-composite was obtained. This nano-composite was examined as a matrix for immobilization of choline oxidase. The sensor exhibited good electrocatalytic behavior towards the electro-oxidation of choline. Thus, amplified response current of biosensor and improved detection sensitivity was obtained using carbon nanotubes. Based on the inhibition of organophosphate compounds to the enzymatic activity of choline oxidase, using paraoxon as a model compound, the conditions for detecting the compound were explored. Under optimal conditions, the response current was proportional to the concentration of paraoxon range from 0.5 to 0.25 µM. The biosensor exhibited good sensitivity, high stability and provided a new method for detecting organophosphate residues.

Keywords: Biosensor, Enzyme, Organophosphorus Compound, Paraoxon
Protection against Radiation-Induced Micronuclei in Rat Bone Marrow Erythrocytes by Curcumin and Selenium L-Methionine

Hossein Mozdarani¹, Saeed Rezapoor², Hamed Bagheri³

Introduction: Searching for the potent radioprotective agents for the amelioration of radiation side effect is an important aim in radiobiology. Our aim in this study was to evaluate the effects of curcumin and seleno-L-methionine against radiation-induced micronucleus formation in rat’s bone marrow.

Methods: Forty male rats were divided into 8 groups (n=5 in each group) including, control, curcumin or seleno-L-methionine treated alone or in combination, 2 Gy irradiation, irradiation of treated groups with curcumin or seleno-L-methionine or their combination. Curcumin was administrated orally and seleno-L-methionine was injected intraperitoneally to rats 24h before irradiation. The frequency of micronucleated normochromatic erythrocytes (MnNCEs) and micronucleated polychromatic erythrocytes (MnPCEs) were scored in 5000 polychromatic erythrocytes (PCEs), and the cell proliferation ratio [(PCE/ (PCE+NCE); NCE = normochromatic erythrocytes] was calculated for each treatment group. Data were analyzed by SPSS version 16 and P < 0.05 was considered as statistically significant.

Results: The results showed that pretreatment with curcumin and seleno-L-methionine before irradiation reduced the frequency of MnPCEs and MnNCEs (P < 0.05) and also increased the cell proliferation ratio. Moreover, the results showed that this pretreatment reduced the frequency of MnPCEs with a protection factor (PF) of 1.2 and 1.6, respectively. The combination of curcumin and seleno-L-methionine on reducing MnPCEs and MnNCEs was not more effective than each agent alone, while improved cell proliferation ratio.

Conclusion: Both curcumin and seleno-L-methionine showed potent protection against radiation-induced MN in bone marrow cells. The combination of the two agents further ameliorates this activity, thus leading to improve bone marrow protection.

Keywords: Radioprotection, Radiation, Curcumin, Seleno-L-methionine, Micronuclei, γ-radiation
Comparison of the Radioprotective Effect of Zinc and Selenium on Mice Spermatogenesis

Hamed Baghehri¹, Ashkan Salajegheh², Abdoreza Javadi³, Peyman Amini⁴, Babak Shekarchi⁵, Masoud Najafi⁶

¹- MSc, Radiation and Wave Research Center, Aja University of Medical Sciences, Tehran, Iran - hamed_parto@yahoo.com
²- MSc, Radiation and Wave Research Center, Aja University of Medical Sciences, Tehran, Iran - ashkan.salajegheh@gmail.com
³- Ph.D., Department of Pathology, Imam Hossein Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran - javadi123@yahoo.com
⁴- MSc, Department of Radiology, Faculty of Paramedical Sciences, Tehran University of Medical Sciences, Tehran, Iran - peyman.amini@yahoo.com
⁵- MSc, Radiation and Wave Research Center, Aja University of Medical Sciences, Tehran, Iran - shekarchi.ba@gmail.com
⁶- Ph.D., Radiology and Nuclear Medicine Department, School of Paramedical Sciences, Kermanshah University of Medical Science, Kermanshah, Iran - najafi_ma@yahoo.com

Introduction: Spermatogenesis system is one of the most radiosensitive organs within the body. A usual therapeutic dose of radiation like a conventional 2Gy in each fraction of radiotherapy or lower doses which can be seen in diagnostic radiology or a radiation disaster affects spermatogenesis procedure potently. Selenium and zinc are two important elements that play a key role in the development of sperms and also have radioprotective effects. In this study, we aimed to evaluate the radioprotective effect of zinc and selenium against radiation-induced injury in mice testis.

Methods: Mice were divided as 1: control; 2: selenium-treated; 3: zinc-treated; 4: radiation; 5: radiation + selenium; 6: radiation + zinc. Treatments started from 2 days before irradiation and then mice irradiated with 2Gy cobalt-60 gamma rays. After 37 days, mice were killed for histopathological evaluations.

Results: The results showed that exposure to radiation causes a potent effect on spermatogenesis system. Treatment with selenium reversed radiation effects potently, while zinc has some limited protective effect. Zinc treatment itself caused a detrimental effect on epididymis and in combination with radiation lead to more damage to seminiferous tubules.

Conclusion: In contrast to previous studies that proposed zinc for protection of spermatogenesis against various toxic agents, results of this study showed that although zinc may protect from some parameters, it can potentiate radiation damage on seminiferous tubules and has a detrimental effect on epididymis. In contrast to zinc, selenium could alleviate radiation toxicity on the most of the evaluated parameters.

Keywords: Radiation, Spermatogenesis, Zinc, Selenium, Seminiferous Tubules, Epididymis
Fabrication of a Novel Electrochemical Sensor for Simultaneous Determination of Organophosphate and Carbamate Pesticides

Hasan Bagheri1, Nashmil Karimian2, Pegah Hashemi3

1- Ph.D., Chemical Injuries Research Center, Systems Biology and Poisonings Institute, Baqiyatallah University of Medical Sciences, Tehran, Iran - h.bagheri82@gmail.com
* 2- Ph.D., Research and Development Department, Farin Behbod Tashkhis Co., Ltd. Tehran, Iran - karimianchemistry@yahoo.com
3- Ph.D., Faculty of Chemistry, Bu-AlI Sina University, Hamedan, Iran - p.hashemi@yahoo.com

A novel electrochemical sensor based on the reduced graphene oxide-Cu/CuO-Ag nanocomposite (rGO/Cu/CuO-Ag/GCE) modified glassy carbon electrode applied to the simultaneous analysis of carbaryl and fenamiphos as two important pesticides in agriculture. The modified electrode exhibited two separated oxidation signals for simultaneous determination of both carbaryl and fenamiphos with excellent sensitivity. The characteristics of the modified electrode were studied with transmission electron microscopy (TEM), X-ray diffraction (XRD) and Fourier transform infrared spectroscopy (FTIR) techniques. Under optimized conditions, the rGO/Cu/CuO-Ag/GCE sensor detected carbaryl and fenamiphos with wide linear ranges of 50 -20000 and 10 - 30000 nM, and the low detection limits were 5.5 nM and 3.2 nM, respectively. This developed sensor applied as a simple and cost-effective electrochemical platform that was successfully used for the detection of low levels of carbaryl and fenamiphos in fruit and vegetable samples.

Keywords: Graphene-Cu/CuO-Ag Nanocomposite, Simultaneous Determination, Pesticides, Differential Pulse Voltammetry
Morphological and Molecular Identification of Vectors of Mosquito-Borne Diseases in the North-West of Iran

Farahnaz Khoshdel Nezamiha1, Reza Arabi Mianroodi2, Amir Reza Esfandiari3, Saiid Shiralizadeh4, Ali Reza Chavshin5

1- Ph.D., Deputy of Healthcare, Air force, Army of Islamic Republic of Iran, Tehran, Iran - p130552@yahoo.com
2- Ph.D., Pasteur Institute of Iran, Tehran, Iran - arabi552@yahoo.com
3- Ph.D., Deputy of Healthcare, Air force, Army of Islamic Republic of Iran, Tehran, Iran - dramir1351@gmail.com
4- Ph.D., Deputy of Healthcare, Air force, Army of Islamic Republic of Iran, Tehran, Iran - s.shiralizadeh@gmail.com
* 5- Ph.D., Department of Medical Entomology and Vector Control, School of Public Health, Urmia University of Medical Sciences, Urmia, Iran - chavshin@umsu.ac.ir

Mosquito-borne diseases are the most important diseases that can be used in the biological wars. Mosquitoes are the important vectors of malaria, types of filariosis, Zika, yellow fever, and Dengue fever which are prevalent in the world and therefore can put a great impact on health and medicine. Precise identification of the mosquito species will lead to effective control programs designed for bio-ecology of each species. In this study both morphological and molecular-based techniques were used extensively for identification of vectors of the region. Although morphological-based identification remains the main method, molecular techniques have been shown to be powerful tools for the identification of closely related species. Iran has long borders with Iraq, the country with long history of war and other neighbors in the north and the north-west of Iran such as Turkey, Azerbaijan, and Armenia which are endemic for these diseases. For this reason, a large part of the border of Iran with these countries (West Azerbaijan Province) was chosen for monitoring the potential mosquito vectors. Larvae and adult mosquitos were collected from different habitats using the standard methods in twenty-five locations of seven counties across West Azerbaijan Province. Totally, 1569 samples were collected from 25 localities which included 1336 larvae and 233 adults. rDNA-ITS sequences were used as markers in the molecular-based studies. Five genera along with 12 species were collected and identified. Nine populations of six species were characterized based on their rDNA-ITS sequences. For the first time, the ITS2 sequences of Culiseta Longiareolata and Culex hortensis are reported. In addition, the ITS2 sequences of Culex theileri and Ochlerotatus caspius for the first time are reported from Iran. This study showed that molecular techniques can be used as an important and rapid
tool for identifying potential mosquito vectors used in war and disease control.

**Keywords:** Mosquito-Borne Diseases, Molecular Techniques, War
Molecular Analysis of Salmonella Enteritidis Isolated from Different Hospitals in Tehran by the Molecular Assay

Zeinab Ahmadi¹, Reza Ranjbarre²

Introduction: Investigation of presumed outbreaks of bacterial infection in hospitals often require strain typing data to identify outbreak-related strains and genetic linkage between them. Pulsed-field gel electrophoresis (PFGE) is the gold standard method for epidemiological studies of many types of bacteria. Salmonella species are one of the most common causes of bacteremia and gastroenteritis in human. The aim of this study was to investigate the genetic diversity of Salmonella enteritidis isolated from clinical samples using PFGE.

Methods: From April 2008 to December 2011, clinical samples of Salmonella strains were collected from different hospitals in Tehran. Salmonella enteritidis strains were identified by biochemical and serological methods. Genetic relationship between the isolates was investigated by PFGE method.

Results: The technique of pulsed-field gel electrophoresis using the restriction enzyme XbaI Salmonella enteritidis serotype isolated comment did all the packing. Out of 40 isolates identified as S. enteritidis, three different clusters (1a, 1b, 1c) were identified by PFGE method. The result shows that 1a cluster with 28 isolates is the most common typing pattern.

Conclusions: The result of this study indicated that S. enteritidis isolated from different hospitals in Tehran are belonging to closed clones with having the same typing patterns.

Keywords: Salmonella enteritidis, Molecular Typing, Pulsed-Field Gel Electrophoresis
Sensitive and Rapid Detection of Tick-Borne Relapsing Fever Borreliae in Patient DNA Samples by Using Loop-Mediated Isothermal Amplification (LAMP)

Faezeh Houmansadr¹, Mohamad Soleimani², Keivan Majidzadeh³

* 1- Master Science, Tasnim Biotechnology Research Center (TBRC), Faculty of Medicine, AJA University of Medical Sciences, Tehran, Iran - faezehhouman@ymail.com
2- Ph.D., Department of Microbiology, Faculty of Medicine, AJA University of Medical Sciences, Tehran, Iran - soleimanidor@yahoo.com
3- Ph.D., Tasnim Biotechnology Research Center (TBRC), Faculty of Medicine, AJA University of Medical Sciences, Tehran, Iran - kmajidzadeh@razi.tums.ac.ir

Introduction: Tick-borne relapsing fever (TBRF) is characterized by a fever followed by septicemia. The genus Borrelia comprises the arthropod vector-transmissible spirochetes (Ornithodoros spp.). TBRF is an endemic disease in Iran, with more than 100 annual cases. In the study, the glpQ-LAMP assay was used to detect TBRF Borreliae in serum DNA of patients collected from the endemic area from Iran.

Methods: Serological samples of 39 patients were obtained from endemic areas of Iran and DNA extraction was performed. Serological tests of these 39 patients were obtained positive. The specific glpQ primers were used for amplification of a specific conserved fragment of glycerophosphodiester phosphodiesterase gene (glpQ) in the glpQ-LAMP assay. So the glpQ-LAMP assay was reacted by the extracted DNA samples at 65 °C for 60 minutes.

Results: Visual analysis of the reaction tubes showed a white turbidity corresponding to glpQ gene amplification in serum DNA of 11 patients. Comparing to positive and negative control reactions, the other samples did not show a positive signal. These results showed 11 acute phase patients.

Conclusion: For the first time, we used the glpQ-LAMP assay to detect TBRF Borreliae in serological samples of patients successfully. The glpQ-LAMP assay can be used as a sensitive, specific and rapid method in epidemiologic and field studies. Despite the improvement in health conditions, significant numbers of TBRF patients are still in Iran.

Keywords: Borreliae, Patient, TBRF, LAMP, GlpQ
The Importance of Training and Increasing Military Nurses' Knowledge Faced with Bioterrorism Attacks

Akram Parandeh¹, Fatemeh Soleimanabadi²

¹- Ph.D. of Nursing, Assistant Professor - akram.parandeh@yahoo.com
²- Master Student of Medical-Surgical Nursing Student - fsoleimanabadi@gmail.com

Bioterrorism attacks are human-health threats which cause deadly harms to human societies. Bioterrorism refers to the deliberate use of biological agents (bacteria, viruses, parasites) for the purpose of causing illness as well as disabling and destroying a society at risk. Today, increasing knowledge of the health system community, especially military nurses, from the bioterrorism attacks is of great importance. The present study aimed at investigating the importance of training and increasing nurses' knowledge faced with bioterrorism attacks.

Methods: The present study is a review literature that has been conducted with extensive searches of Persian and English articles (2000-2018) from ProQuest, Science Direct, PubMed, Iran doc, and Sid databases. The search was conducted with the keywords "turnover", "Nurse", "Military Hospital", "Civil Hospital" and "Biological agent". From 44 articles, 15 articles based on inclusion criteria were selected and analyzed.

Results: The most significant method to deal with bioterrorism is primarily strengthening the medical team’s knowledge for rapid diagnosis and response. According to studies, more than 80% of nurses had no experience or knowledge in bioterrorism attacks. But looking for training, the knowledge of military nurses was significantly increased (98.5%).

Conclusion: Due to the necessity of knowledge and importance of military nurses training in facing with bioterrorism attacks, the inclusion of issues related to biological defense in the curriculum for military nursing students and planning continuous education for nursing staff seem to be necessary and need the most attention from the people in charge.

Keywords: Bioterrorism, Knowledge, Military Nurse, Training, Biological Attack.
New Insights into Molecular Toxicology of Sulfur Mustard: Current Strategies Performed in Human Genetics Research Center

Mostafa Khafaei¹, Ali Mohamadi², Mahmood Tavallaei³

¹- MSc, Human Genetic Research Center, Baqiyatallah Medical Sciences University, Tehran, Iran - mn.khafaei@yahoo.com
²- MSc, Human Genetic Research Center, Baqiyatallah Medical Sciences University, Tehran, Iran - sepehre3293@gmail.com
³- Ph.D., Human Genetic Research Center, Baqiyatallah Medical Sciences University, Tehran, Iran - tavalla.mah@gmail.com

Sulfur mustard (SM) is an active desiccating agent which was used against both military and civilian population of Iran during the Iran-Iraq war (1980-1988). Due to its unclear mechanism of action in the pathogenesis of lung, clinical management strategies, especially diagnostic protocols and treatments are not well defined. In Human Genetics Research Center we focus on powerful techniques to determine precise mechanism of sulfur mustard such as profiling of 739 microRNAs in serum and urine samples of 43 SM exposed patients, and microarray transcriptional profiling of 122 genes which were significantly dysregulated in tissues located in the airway of patients and next knock down or knock in of genes which dysregulated via a powerful, revolutionary tool for genome editing, namely CRISPR CAS9 system. Finally, we attempt to carry out whole-exome ultra-high throughput sequencing in samples of sulfur mustard victims and control subjects. This study aimed to reveal the selective accumulation of rare variants in the coding and the UTR sequences within the genes.

Keywords: Sulfur Mustard, microRNA, Whole-Exome Sequencing, CRISPR CAS9
An Overview of Bioterrorism Attacks and Passive Defense in Health Care Strategies

Sajjad Yazdansetad¹, Sareh Samadi², Hamzeh Azari³

*¹- Ph.D., Razi Vaccine and Serum Research Institute - sajjad.yazdansetad@gmail.com
2- Ph.D., Applicable Research Center, NAJA Deputy of Health & Care - samadi53.s@gmail.com
3- MSc., Applicable Research Center, NAJA Deputy of Health & Care - azari.h65@gmail.com

Bioterrorism is the deliberate release of biological agents or toxins, in order to damage or destroy humans, animals, and plants which ultimately leads to fear in the government or civilian population to achieve political or social success. This study discussed the biological terrorism and the necessity of passive defense in health care strategies. The biological weapons system includes four components: a payload, munition, delivery system and dispersion system. The payload is the biological agent itself. The munition protects and carries the payload to maintain its potency during delivery. The delivery system can be a missile, vehicle or an artillery shell. The dispersion system ensures dissemination of payload at the target site. Potential methods of dispersion are aerosol sprays, explosives, and food or water contamination. Aerosol sprays are the most effective means of widespread dissemination. Depending on atmospheric conditions and the agent itself, the infectious material could travel several hundred kilometers in a particle size that upon inhalation would cause infection. However, factors like particle size and stability of the agent, under desiccating conditions and ultraviolet light, wind direction, and atmospheric stability can alter the effectiveness of a given delivery system. Explosions are likely to inactivate biological agents and therefore are not very effective in disseminating infectious materials. Contamination of water supplies generally requires an addition of an unrealistically large amount of biological agents to a city supply. The agents may be introduced into smaller reservoirs or into the water supply after the water passes through its purification facility. Furthermore, the outbreaks from food source may be dismissed as a "natural" event at least during the initial phase of the bioterrorist attack. In this regard, close cooperation between the Ministry of Health and Medical Education and the military and security forces will help to resolve the problem as soon as possible.

Keywords: Bioterrorism, Contamination, Passive Defense, Military
Using Fourier Transform Infra-Red Technique for Detection of Common Bacteria in the Laboratory of Two Medical Centers of NEZAJA

Mohammad Javad Akrami¹, Akhtar Kazemi², Saeed Soleiman-Meigooni³

¹ MSc, NEZAJA Military of Health Organization - akrami_m.javad@yahoo.com
² MSc, NEZAJA Military of Health Organization - kazemi467@yahoo.com
* ³ Assistant Professor, AJA University of Medical Sciences - dr.saeed.meigooni@gmail.com

Introduction: Rapid detection of pathogenic organisms is crucial in the diagnosis and treatment of the diseases. The aim of this study was to evaluate the efficiency of Fourier transform infra-red (FTIR) in the detection of common bacteria in Khanevadeh Hospital and Fallahi Clinic, from NEZAJA military of health organization.

Methods: We use 300 colonies of bacteria from different wards of these two centers. Twenty colonies were finally selected using some filters. These isolates were compared with literature and reference stoked bacteria using FTIR. The software IR solution used for peak correction. Finally, biochemical methods were used for re-detection of bacteria.

Results: They constituted six groups of reference bacteria from decomposition to the main component in the spectrum field CM-1. There were four bacteria in the reference cluster of E. Coli, four bacteria in the reference cluster of Klebsiella, three bacteria in the reference cluster of Pseudomonas, three bacteria in the reference cluster of Enterococcus, three bacteria in the reference cluster of Staphylococcus aureus, and three bacteria in the reference cluster of Staphylococcus epidermidis. Biochemical detection methods confirmed FTIR in the detection of bacteria.

Conclusion: This technique for detection of bacteria was successful despite variation in bacteria structure and physiology. It may be used in some critical situations such as war, which need a rapid and exact diagnosis. FTIR method has various sensitivity and specificity which may result in confusing analysis. So it is necessary to optimize this method using another studies.

Keywords: Fourier Transform Infra-Red Technique, Bacteria, NEZAJA
Review on Triage in Nuclear Events

Maryam Beheshtifar¹, Ali Askari², Mohammad Ali Momeni³

* 1- BSc in Nursing, Education Development Center, AJA University of Medical Sciences, Tehran, Iran - maryam.beheshtifar@gmail.com
2- Nursing Student, Student Research Committee, Faculty of Nursing, AJA University of Medical Sciences, Tehran, Iran - maryam.beheshtifar@gmail.com
3- Medical Student, Student Research Committee, Faculty of Medicine, AJA University of Medical Sciences, Tehran, Iran - maryam.beheshtifar@gmail.com

Introduction: The use of militant radioactive materials or any inaccurate use of peaceful nuclear facilities, including the Chernobyl, and Gobenya events could lead to a large number of injuries that require special care. Due to a large number of injured people in these events, the tension is more important than the resources and manpower limitations. Preparation of nurses as caring staff would play an important role in controlling and reducing the consequences of the event. Therefore, in this study, we tried to review the triage in nuclear events for familiarizing medical staff with an emphasis on nurses.

Methods: This is a review study that has been carried out using a survey of past research conducted by searching in library resources, dissertations and internet resources related to the subject matter.

Results: After a nuclear incident, injuries can be seen in addition to physical injuries, radiation damage, and nuclear material contamination. At the scene of the incident, the triage is initially based on non-nuclear injury, based on the patient's vital signs and hemodynamic conditions. After physical examination and external contamination, nuclear triage is classified into three possible and unavoidable categories of survival according to the amount of radiation received and acute radiation symptoms such as nausea, vomiting, and diarrhea.

Conclusion: Triage is a dynamic process that categorizes injuries based on the urgency of treatment, type of conditions observed and available facilities. In nuclear incidents, the classification of injuries is different from the normal situation, and those with fewer injuries will have a higher priority, which will require the knowledge of medical staff, especially the military forces, as a result of exposure to these events.

Keywords: Triage, Nuclear Events, Medical Staff
National and International Support Network for Chemical Warfare Victims

Ahmad Ebadi

* 1- Associate Professor, Health Institute of Chamran Hospital
- ebadi1442@gmail.com

The chemical warfare victims need many aspects of support. The first of these needs is medical support for short and long health effects on the lungs, skin, and eyes. On the other hand, psychosocial health with variables like mental, social, spiritual, emotional, behavioral and economic factors is an important subject that needs centers for psychosocial support for victims of chemical warfare in any country with chemical war. Finally, chemical warfare victims need a national and international support network for their right to defend and make an international follow-up. There are some national and international organizations which try for official and humanitarian goals in the field of chemical warfare victims such as "Veterans and Martyr affair foundation (VMAF) in Tehran, Iran", "Jiyan Foundation" in Kirkuk, Iraq, WHO, ICRC, "Green Cross International" and OPCW. For creating a support network, we should attach and organize all of them and prepare financial, technological and official supplies.

Keywords: Support Network, Chemical Warfare Victims, National, International
Psychological Health and Cognitive Science in Military Community
An Investigation on the Role of Family Soldiers of a Military

Hamid Mokhtari¹, Rasool Kheyri², Arman Alipour³

Introduction: Perpetration of crime is not a random event among soldiers and happens as a result of a course of thoughts, behaviors, circumstances and inter-personal relations which mostly originate from some time before the military training period. The goal of the present research is to investigate the role of family soldiers of a military unit.

Methods: This descriptive cross-sectional study was carried out on all soldiers of a military unit from 2009 to 2011. A sample of soldiers perpetrated a crime (n = 100) and without crime (n=100) were selected. Information was collected using Family Performance Scale and Structured interview. Data were analyzed using SPSS-22.

Results: There was a significant difference between groups in night subscales of Family Performance. The family cohesion, assertiveness, ambition, family, socialization and control the source of the soldiers who committed the crime is lower than the soldiers who did not. The degree of fragmentation, conflict, intellectual-cultural orientation and interrelatedness of soldiers who committed crimes have been higher than the soldiers who did not commit a crime.

Conclusion: According to the obtained background factors, soldiers should be screened by the time of arrival at military environments and at regular intervals. Preventive interventions such as training, consultation and psychotherapy should also be performed.

Keywords: Crime, Role of Family, Military, Family Performance Scale.
Comparison of Temperament and Character in Conscripts with Suicidal Tendencies, Substance Abuser and Normal Conscripts

Komeil Zahedi Tajrishi¹, Arsia Taghva², Parviz Dabbaghi³, Abbas Omid⁴

* 1- Ph.D. Student, Iran University of Medical Sciences - zahedi.komeil@gmail.com
2- Associate Professor, AJA University of Medical Sciences - drarsiataghva@irimc.org
3- Associate Professor, AJA University of Medical Sciences - dabaghi_44@yahoo.com
4- Assistant Professor, AJA University of Medical Sciences - abasomid@gmail.com

Introduction: Individual differences in personality background affect the physical, psychological, and social aspects of health and well-being. According to the conducted studies, the personality has a moderate relationship with all of the components of well-being.

Methods: The design of the present study is a causal-comparative study. The statistical population of the present study consisted of all conscripts referring to the Medical Council of the Artesh 505 Hospital as well as all conscripts working in this hospital. The convenient sampling method was used for sampling, and 150 conscripts were entered into the study according to the inclusion and exclusion criteria by considering incomplete questionnaires and sample loss. Information of 120 conscripts (40 conscripts in each group) were used in the final analysis. Data collection tools include structured clinical interview, demographic information questionnaires, Cloninger's temperament and character (TCI-125), Beck Scale for Suicidal Ideation (BSSI), and Depression, Anxiety and Stress Scales (DASS-21).

Results: The results showed that suicidal conscripts had higher scores in Harm Avoidance (HA) and Self-transcendence dimensions and lower scores in Reward Dependence (RD), Cooperativeness (CO) and Self-directedness (SD) compared to ordinary conscripts (P < 0.001). Also, conscripts with substance-abuse history obtained lower scores in terms of Reward Dependence (RD), Persistence (PS), Cooperativeness (CO), and self-directedness than ordinary conscripts, while their scores in the dimension of Novelty Seeking (NS) were significantly higher than ordinary conscripts (P < 0.001). Finally, the comparison of suicidal conscripts and substance abusers showed that suicidal conscripts obtained higher scores in dimensions of Reward dependence (RD), Harm Avoidance (HA), and Self-transcendence (ST), while their scores in terms of Novelty Seeking (NS) and Cooperativeness (CO) were lower than substance-abuser conscripts (P < 0.001).

Conclusion: According to the available findings, given the characteristics of temperament and character, conscripts who are at
increased risk of suicide, substance abuse or other disorders can be identified from the very beginning.

**Keywords:** Character, Conscripts, Substance Abuse, Suicidal Ideation, Temperament
The Necessity of Attention to Spiritual Health in "Holistic Services for Military Medicine"

Minoo Asadzandi

* 1- Assistant Professor, Department of Anesthesiology, School of Nursing, Medicine And Religion Research Center, Baqiyatallah University of Medical Sciences - zandi498@yahoo.com

Introduction: The holistic approach emphasizes simultaneous attention to all aspects of the human being and introduces the man as an integrated whole, consisting of interacting dimensions and indivisible components. The purpose of this study was to determine the effect of spiritual health on other dimensions of health in "Holistic Services for Military Medicine".

Methods: In evolutionary research, to answer the question "What is the effect of spiritual health on other dimensions of health?" articles related to spiritual well-being, care, counseling and executive challenges in the Health Sciences Research Database and the General Base of Scientific Papers between 2000 and 2016 were selected and analyzed based on qualitative criteria.

Results: The man as a bio-psycho-socio-spiritual existence is influenced by culture. The culture determines the lifestyle of people and affects the social needs of society. Culture also has an impact on the concept of health and disease, the choice of treatment and care, the recognition of disease etiology and patients’ response to disease. Health and disease are social concepts. The provision of health services should be community-based, which requires the recognition of the values and beliefs of the people. Providing a community-based definition of health and disease is essential for societies with a religious culture because they believe in the soul in addition to body and mind. Spirit has an eternal originality that can relate the man to God and has the greatest impact on health and disease which is confirmed in psycho-neuron-immunology.

Conclusion: Spirituality is an important dimension of holistic care. It is an integral part of human beings which affects other aspects of health dimensions, intentions, and emotions, verbal and non-verbal behaviors. Thus in "Holistic Services for Military Medicine", spiritual care is an essential part.

Keywords: Spiritual Health, Holistic Services, Military Medicine, Psycho-Neuron-Immunology
Persistent Response to Acute Psychosocial Stress

Boshra Hatef, Maryam Alem Aref, Zahra Boorboor, Asgar Emamgoli, Alireza Mohammadi

Introduction: Repetitive stress occurs every day. Therefore, if the biological modifiers do not have enough time to restore the normal state of hemostasis, chronic stress would be anticipated. The aim of the present study was to examine the persistence of stress based on subjective emotion, salivary cortisol and linear and non-linear features of heart rate variation (HRV) in both genders.

Methods: Thirty-three healthy young volunteers (23 men and 10 women) were exposed to the Trier Social Stress Test (TSST). Moreover, the Emotional Visual Analogue Scale (EVAS), salivary cortisol, and ECG recording in the rest state were taken before and after TSST, and 20 minutes after recovery.

Results: The two-way mixed model ANOVA indicated that all volunteers showed a significant increase of EVAS after TSST that restored to baseline after recovery. The women’s base of cortisol was significantly higher than men and the standard range of the kit. Cortisol elevation was only observed in the men and the significant increase of LF/HF ratio was observed in the women that both remained after recovery. The SD1 of Poincare plot and spectral entropy decreased after stress in both genders. Moreover, there was a significant negative correlation between baseline level of cortisol and cortisol elevation due to stress and some features of HRV.

Conclusion: The base of cortisol plays a critical role in modifying the physiological response to stress. However, no stressful emotion remained after recovery but the non-linear features of HRV did not return to baseline after recovery.

Keywords: Stress, Cortisol, EVAS, HRV, Non-Linear Features, Gender
The Situation of Self-Care in Veterans with Chronic Post-Traumatic Stress Disorder: A Systematic Review

*Masoud Sirati Nir*

*1- Associate Professor, Member of Research Center for Behavioral Sciences, Baqiyatollah University of Medical Sciences, Tehran, Iran - masoudsirati@gmail.com*

**Introduction:** Post-traumatic stress disorder (PTSD) is identified as the risk factor for functional difficulties in most of the survivors. The aim of this study was to investigate the current evidence-based literature on the area of self-care and ADL status in the veterans with chronic PTSD caused by war.

**Methods:** This review was conducted on the studies published from 2005 to 2015. The search was performed using such databases as SID, Iran Medex, Magiran, Science Direct, ProQuest, and PubMed. The searches were initially carried out using single keywords and then continued with using OR/AND for combining words such as “self-care activity, instrumental activities of daily living, physical functioning, chronic post-traumatic stress disorder in war veterans, etc”. Finally, a total of 783 papers were retrieved, out of which only 15 publications were considered relevant to the subject under discussion and investigated in-depth.

**Results:** According to the findings of the reviewed articles, there is a relationship between the self-care status and PTSD severity; as a result, greater PTSD symptoms are accompanied by poorer self-care practices and ADLs. Furthermore, in all of the studies, the physical functioning (self-care or ADLs) was lower in the PTSD population in comparison to the non-PTSD population.

**Conclusion:** As the findings of the retrieved articles indicated, it can be concluded that the self-care practices and ADLs were poor among the veterans suffering from chronic PTSD. Therefore, it is necessary that nurses develop a comprehensive care planning for this population to facilitate their achievement of independence in ADLs.

**Keywords:** Activity of Daily Living, Chronic Post-Traumatic Stress Disorder, Self-Care, Veteran
The Determination of Mental Health among Military Retired Forces Based on Organizational and Humanistic Variables


Introduction: Every staff member has a period called retirement which causes many changes and developments. The current study was aimed to determine the mental health among the military retired forces based on organizational and humanistic variables.

Methods: In this study which was a description-correlational research, the population included the military staff forces in all the provinces of the country. Accordingly, 5265 retired staff were selected by Quota sampling method. The Mental Health Questionnaire (GHQ) was completed by the subjects. Data were analyzed using SPSS, descriptive statistics (Mean and Standard Deviation) and correlation.

Results: No differences were observed between the mean of mental disorders among the retired men and women. The results showed that demographic variables (age, education, employee status, housing status, economic status) have direct statistical effects on mental disorders. In other words, demographic variables (age, education, employee status, housing status, economic status) could predict mental disorders among the retired. In general, 13 percent of mental disorder’s variance could be explained by demographic variables.

Conclusion: According to the results of this study, it can be concluded that the demographic variables have a significant effect on the mental disorders of the retired. Due to the importance of the retired as intellectual forces, besides from benefiting from their capabilities, it is absolutely vital to reduce the mental damages caused during retirement by having strict planning during the staffs' career and even before their career in order to reduce these damages.

Keywords: Mental Health, Retired, Organizational Variable
A Qualitative Study of Self-Care Facilitators in Iranians’ Veterans with Combat-Related PTSD

Robabe Khalili¹, Masoud Sirati Nir²

¹- Assistant Professor, Member of Research Center for Behavioral Sciences, Nursing Faculty, Baqiyatallah University of Medical Sciences, Tehran, Iran - khalili1120@gmail.com
*²- Associate Professor, Member of Research Center for Behavioral Sciences, Baqiyatollah University of Medical Sciences, Tehran, Iran - masoudsirati@gmail.com

Introduction: The lack of self-care in patients with post-traumatic stress disorder (PTSD) can cause physical health problems, which consequently result in a poor quality of life. This study is aimed at identifying and exploring the factors facilitating self-care in veterans with combat-related PTSD.

Methods: This qualitative research was conducted by conventional content analysis. Twelve veterans with chronic PTSD and 13 caregivers participated, using purposive sampling. Data collection was carried out with 18 individual interviews and two group interviews, which were profound and semi-structured.

Results: Five main categories including spirituality, personal knowledge, family support, social support, and institutional facilities were extracted as factors facilitating self-care in physical, psychological, emotional and spiritual domains. A total of 14 sub-categories emerged.

Conclusion: Planning and intervention on self-care facilitators in different domains can help to achieve independence in caring for veterans with combat-related PTSD.

Keywords: Caregivers, Chronic Post-Traumatic Stress Disorder, Self-Care, Qualitative Research, Veterans
Personality Characteristics of the Healthcare Personnel of a Selected Armed Force

Jamileh Mokhtari Nouri¹, Morteza Khaghanizadeh², Abbas Ebadi³, Seyyed Mohammad Khademolhosseini⁴, Soghra Jafar Nodeh⁵

* 1- Associate professor, Faculty of Nursing, Baqiyatallah University of Medical Sciences - mokhtari@bmsu.ac.ir
2- Faculty of Nursing, Baqiyatallah University of Medical Sciences - 2014moteza@yahoo.com
3- Professor, Faculty of Nursing, Baqiyatallah University of Medical Sciences - ebadi1347@yahoo.com
4- Assistant Professor, Faculty of Nursing, Baqiyatallah University of Medical Sciences - khadem1967@gmail.com
5- M.Sc., Hospital - sjn.parparak@gmail.com

Introduction: Recognizing the personality traits of individuals can be an effective step in controlling and promoting physical and mental health. The purpose of this study was to "examine the personality traits of the health care personnel of a selected Armed Force".

Methods: The study was a descriptive cross-sectional study. The research population consisted of 750 employees who were selected by random cluster sampling. For data collection, the NEO personality questionnaire and demographic information questionnaire were used. Data were analyzed using SPSS 18 software and descriptive statistics tests.

Results: The number of male participants was 50.3% and women were 49.7%, with an average age of 32.29 years. Participants had high accountability (32.88 ± 6.74), followed by a pleasant personality trait (30.44 ± 5.19), extroverted (27.87 ± 5.38), flexibility (24.55 ± 4.24) and neuroticism (21.21± 6.45) were the most commonly found cases.

Conclusion: Although participants in the psychosocial personality trait have the lowest score, they need to take appropriate measures to correct it.

Keywords: Personality Traits, Healthcare Personnel, Military
Comparison Effectiveness of” Eye Movement Desensitization Reprocessing” and” Cognitive – Behavioral” on reducing of specific symptoms in War PTSD.

Mohammad Javad Ahmadi Zadeh

* 1- Assistant Professor, Baqiyatallah University of Medical Sciences
- m.ahmadizadeh@bmsu.ac.ir

**Introduction:** The interventions focusing on trauma are considered first-line treatment for Post-traumatic stress disorder (PTSD). Eye movement desensitization and reprocessing (EMDR) and trauma-focused cognitive-behavioral therapy (CBT) are both widely used in the treatment of PTSD. However, there has been a debate regarding the advantages of one approach over the other. The aim of this study was to determine whether there was any evidence that one treatment was superior to the other on the reduction of specific symptoms of veterans suffering from PTSD due to war.

**Methods:** The statistical population of the study was injured veterans with post-traumatic stress disorder, with 45 people using a pseudo-experimental design with two experimental groups including 1- cognitive-behavioral group 2- EMDR group and one control group randomly selected and in groups replaced. The instrument for measuring the post-traumatic stress disorder was Checklist Military version (PCL-M). This Checklist (PCL) is a self-report rating scale for assessing post-traumatic stress disorder.

**Results:** Both cognitive-behavioral therapies and eye movements desensitization and reprocessing are effective in reducing the specific symptoms of post-traumatic stress disorder, but the effectiveness of both therapies on differentiating the specific symptoms of the disorder is different.

**Conclusion:** The therapeutic method for eye movement desensitization and reprocessing has been more effective than the cognitive-behavioral therapy group on the set of symptoms associated with symptoms of arousal and reactivity in relation to the traumatic event.

**Keywords:** Post-Traumatic Stress Disorder (PTSD), Cognitive-Behavioral (CBT), Eye Movements Desensitization Reprocessing (EMDR), PTSD Checklist-Military Version (PCL-M)
Validity and Reliability of the Persian Version of “Post-Traumatic Stress Disorder Scale” in War Veterans

Arsia Taghva1, Meysam Sadeghi2, Amirmohsen Rahnejat3, Naser Goudarzi4

* 1- Associate Professor, Aja University of Medical Sciences, Military Psychiatry Research Center - ataghva@yahoo.com
2- Ph.D. Candidate, Evaluation & Measurement Department, Psychology & Educational Faculty, Allameh Tabataba’i University, Tehran, Iran - meysamsadeghi7@gmail.com
3- Assistant Professor of Psychology, Aja University of Medical Sciences - arahnedjat@yahoo.com
4- Assistant Professor of Health Psychology, Aja University of Medical Sciences – nasser_goudarzi@yahoo.com

Introduction: After more than 25 years of Iran-Iraq war, it is required to have a standard and normalized tool to assess the post-traumatic stress disorders (PTSD) as a screening tool, based on the newest copy of the statistical manual of mental disorders (DSM-V). The aim of the study was to investigate the validity and reliability of the post-traumatic stress index (PCL-5) in the veterans.

Methods: In this applied descriptive study, 400 male veterans with chronic PTSD, who were residents of Tehran City and hospitalized in the army hospitals and being treated by the army psychologists and psychiatrists based on the diagnostic symptoms and signs, were studied from December 2015 to April 2016. The subjects were selected via purposeful and available sampling method. Data, collected by PCL-5, were analyzed through the exploratory and confirmatory factor analysis, correlational method, and Cronbach’s alpha, as well as retest.

Results: To explain and fit, the structure, based on four sub-scales, was proper. In addition, PCL-5 showed favorable convergent evidences (p = 0.001; r = 0.68). The credibility coefficients of Cronbach’s alpha and the retest index were more than 0.70 and satisfactory in the total scale and its dimensions.

Conclusion: PCL-5 has proper validity and reliability and it can be used in the screening of the veterans.

Keywords: Stress Disorder, Post-Traumatic, PCL-5, Veterans
Evaluating Psychometric Characteristics of Detection Protocol of Malingering Stuttering

Majid Saleh, Arsia Taghva, Vahid Donyavi

Introduction: Stuttering is a disorder in fluency that is identified through involuntary interruptions in continuous speech. With respect to the law of exemption of stuttering individuals from military service the issue of malingering is quite common. Since there is no standard tool to be used for deciding exemptions, experts rely mostly on their personal knowledge and judgment, and because the measurement is made informally, it increases the likelihood of errors. Therefore, the preparation of a protocol to detect conscripts who are afflicted with malingered stuttering from those who suffer from real stuttering was important.

Methods: This study is of validation type. Accessible simple non-probability sampling was used. First, different sections of the detection protocol of malingering were prepared, which consisted of a structured interview, questionnaire for malingering stuttering, MMPI test, facilitator techniques, and analysis of reading and speech sample. Then, sampling was done on 20 exemption applicants who were suspected to be malingering and, at the same time, on 15 applicants who had visited a clinic for a real stutter. Then, the features of the protocol were investigated, and the profile of malingering was prepared based on the results obtained from the detection protocol of malingered stuttering. Finally, the data were analyzed using SPSS.

Results: With regard to Cronbach's alpha coefficient, which was equal to 0.76, for the detection questionnaire of malingered stuttering, the questionnaire was of good internal consistency. To determine the concurrent validity of the protocol, the Chi-square test was carried out, and no significant difference was found between the protocol and the comments of the psychiatrists. The protocol was of good construct validity. Finally, a profile was prepared to determine the status of conscription based on the results for each participant.

Conclusion: According to the results, the detection protocol of malingering stuttering is of good internal consistency and concurrent validity.

Keywords: Stuttering, Malingering, Psychometric, Protocol
The Mediating Role of self-compassion in Terms of Rumination and Depression Symptoms in Veterans with Post Traumatic Stress Disorder

Abolfazl Barzegaridahaj\textsuperscript{1}, Peyman Jahandari\textsuperscript{2}, Abdolbaset Mahmoudpour\textsuperscript{3}, Reza Naderi\textsuperscript{4}

* 1- MSc, Allameh Tabataba'i University - barzegar1991@yahoo.com
2- MSc, Military Medicine Research Center, AJA University of Medical Sciences - p.jahandari54@gmail.com
3- MSc, Allameh Tabataba'i University - mahmoudpour.counsellor@yahoo.com
4- MSc, Islamic Azad University, Garmsar Branch - barzegaridahaj@gmail.com

**Introduction:** The aim of this study was to investigate the role of mediation of self-compassion in the relationship between rumination and depression symptoms in Veterans with Post Traumatic Stress Disorder.

**Methods:** This research is descriptive and co-relational. For analyzing the hypothesized model, the path analysis was used. The research population was all of the veterans with PTSD diagnosis in Tehran who used the services of the military hospitals of the Islamic Republic of Iran. A total of 90 people were selected randomly in a cluster sampling. Beck depression questionnaire, and Neff rumination and self-efficacy questionnaire were used to collect information.

**Results:** The results of the indirect effects test, using Amos software, showed that the degree of indirect effect of rumination variable on depression through the mediatory variable of self-compassion (β=0.51) at a confidence level of 95% was meaningful.

**Conclusion:** Considering the significance of the hypothesized model of research, it can be said that self-compassion can decrease the symptoms of depression in veterans with PTSD by affecting rumination. Therefore, self-compassion interventions in this clinical group can be fruitful.

**Keywords:** Self-Compassion, Rumination, Post Trauma Stress Disorder
The Impact of Social Support Skill-Training Group Intervention on Perceived Social Support in Combat-Related Posttraumatic Stress Disorder

Masoud Sirati Nir1, Morteza Khaghanizade2, Abolfazl Rahimi3, Fataneh Ghadirian4, Mohammad Khazaei5

* 1- Associate professor Behavioral Sciences Research Center and Nursing Faculty, Baqiyatallah University of Medical Sciences - masoud@sirati.info
2- Associate professor Nursing Faculty, Baqiyatallah University of Medical Sciences - 2014mortezakh@gmail.com
3- Associate professor Nursing Faculty, Baqiyatallah University of Medical Sciences - fazel123@yahoo.com
4- Assistant professor Nursing Faculty, Baqiyatallah University of Medical Sciences - ghadirian.fataneh@gmail.com
5- MSc nursing Nursing Faculty, Baqiyatallah University of Medical Sciences - khazaik@yahoo.com

Background: Traumatic events related to war have long effects on psychiatric psychopathologies. From these disturbing conditions, posttraumatic stress disorder (PTSD) is considered to be the most characteristic feature of psychiatric traumatic experience. The current study was designed to assess the effect of two social support skill-training group interventions on perceived social support in veterans with PTSD.

Materials and Methods: The study was conducted with the clinical trial method. According to the inclusion criteria, 60 of 367 veterans with PTSD were selected and randomly allocated into two intervention groups and a control group. The two training programs on social support skills consisting of three sessions, each being 1.5–2 h, were held weekly for 3 weeks. The Multidimensional Scale of Perceived Social Support was filled by samples before and 6 weeks after intervention. The data were analyzed by descriptive and analytical statistics using PASW Statistics 18.

Results: The ANOVA results showed that after the intervention, there were significant differences in perceived social support between intervention groups and control group (F = 1.06, p = 0.001), but there was no significant difference between intervention groups by t-test (t = 28.05, p < 0.10). The paired t-test showed a significant difference in all subscale scores of perceived social support between two intervention groups before and after intervention (p < 0.05).

Conclusions: The results of the current study agreed with the positive effects of social support skill training on perceived social support in veterans with PTSD. It is suggested that these training courses should be included in the community re-entry programs of veterans with PTSD.

Keywords: Iran, Posttraumatic Stress Disorder, Social Support, Stress Disorder, Veterans
**Investigation of Psychiatric Reasons of Exemption in Soldiers Referring to the Medical Commission in a Military Center During 2007-2013**

*Hasan Shahmiri¹, Arsia Taghva², Saman Firouzian³, Hamidreza Kazemi⁴*

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**Introduction:** The purpose of this study was to investigate the prevalence of psychiatric disorders among the soldiers referring to the medical commission.

**Methods:** A cross-sectional descriptive retrospective study was conducted on the patients referring to the psychiatric commission in a military center during 2007-2013. For data collection, a researcher-made questionnaire was used. It was completed using archives and records. The final diagnosis was made according to at least three psychiatric viewpoints and DSM-IV-TR diagnostic criteria. Data were analyzed by SPSS 18 software via descriptive statistics.

**Results:** The reported psychiatric causes of all exemption cases were respectively: personality disorders (51.4%), neurosis (21%), mood disorders (15.2%), psychosis (4.2%), mental retardation (5.4%) and other causes (2.8%). In the outpatient group: personality disorders (52.8%), neurosis (21.8%), mood disorders (14.3%), psychosis (3.5%), mental retardation (5.4%) and other causes (2.2%) were reported. On the other hand, in the inpatient group: mood disorders (50.2%), personality disorders (20.4%), neurosis (16.3%), psychosis (6.1%), mental retardation (5.4%) and other causes (1.6%) were reported.

**Conclusion:** Due to the high prevalence of mental disorders and the disability caused by them in the society, appropriate screening before starting the service and periodical mental health monitoring during the military service should be considered.

**Keywords:** Soldiers, Exemption, Psychiatric Disorders
Explaining the Needs of Spouses of Veterans ‘War with Post-Traumatic Stress Disorder

Leila Karimi1, Akram Parande2

* 1- Assistant Professor, Health Research Center, Lifestyle Institute, Baqiyatallah University of Medical Sciences, Tehran, Iran - leilakarimi1487@gmail.com
2- Assistant Professor, Health Research Center, Lifestyle Institute, Baqiyatallah University of Medical Sciences, Tehran, Iran - akram.parandeh@yahoo.com

Introduction: PTSD is one of the main problems of mental health. Taking care of veterans with PTSD results in some physical and psychological complications, mainly, in their spouses, affecting their quality of life and creates some needs for them. The purpose of this study was to explore the needs of veterans' wives with Post-traumatic stress disorder.

Methods: The present study was a qualitative content analysis in which data were collected through individual in-depth semi-structured interviews with 22 veterans' wives and key informants such as health care providers, specialist, and their husbands who were purposefully selected. Qualitative data was analyzed using Maxqda.

Results: Qualitative findings revealed two main themes, including "the need for policy making in the post-traumatic disorder prevention services" and "needs to optimize the structure of preventive-care and welfare-services". Subthemes of these themes, including “The need for respect from the community and the state", "The need for educational and counseling services", "The need for adequate facilities and support" and "The need to empower veterans' spouses".

Conclusion: Based on the obtained information, it is recommended that appropriate planning, budget allocation, and human resources be used to honor and respect, provide facilities and advocacy, provide educational and counseling services, and empower veterans' spouses to improve the health of women and improve the health of the community.

Keywords: Health, Need Assessment, Veterans, Spouse, Post-Traumatic Stress Disorder
The Effectiveness of Resilience Training on Depression and Suicidal Ideations of Soldiers at Risk of Suicide

Parviz Dabaghi¹, Arman Alipour², Behnoush Sabayan³, Ramin Sepahvand⁴

1- Assistant Professor, Faculty Member of AJA University of Medical Sciences
- dabaghi_44@yahoo.com
* 2- Master Staff of NEZAJA - armanalipour@yahoo.com
3- Ph.D. Candidate Student, Research Committee, AJA University of Medical Sciences, Tehran, Iran - behnoush.sabayan@gmail.com
4- Master Staff of NEZAJA - rsepahvand@gmail.com

Introduction: Today, psychological problems such as anxiety and depression have increased in many parts of the society, especially in the military, due to the nature of their work. The inability to deal with these pressures can be manifested in the form of compromise problems such as emotional distress, depression, and other mental illnesses. Therefore, the present study was conducted to investigate the effect of resiliency training on depression and suicidal ideations of soldiers, who were at risk of suicide.

Methods: The present study is a quasi-experimental design that utilizes a pretest-posttest design with control group. The statistical population of this study was 30 soldiers stationed in one of the army barracks in Golestan province, who had significant suicidal ideas by Beck suicidal ideation scale in 2012 - 2013. Multivariate analysis of variance (MANOVA) was performed using SPSS for Windows, version 17.

Results: The results of this study showed that the training, which was performed on the resiliency group during 10 sessions, could significantly decrease the depression and suicidal thoughts in soldiers (P = 0.05).

Conclusion: Based on research findings, resilience as one of the relatively new training can be effective in reducing the depression and suicidal thoughts of soldiers.

Keywords: Resilience, Depression, Suicidal Thoughts, Soldiers.
The Relationship between Sleep Quality, Job Burnout, Job Satisfaction, and Police Force Mental Health in Kermanshah

Alireza Sohrabi¹, Mahdi Karami², Nasrin Goharmehr³

1- MSc, NAJA - mahdi.karami58@yahoo.com
2- MSc, NAJA - mahdi.karami58@yahoo.com
3- BSc, Mohammad Kermanshahi Hospital - mahdi.karami58@yahoo.com

Introduction: The present study was aimed to investigate the relationship between sleep qualities, job burnout and job satisfaction with mental health among 323 police staff in Kermanshah, Iran.

Methods: It was an applied-descriptive study. Samples were selected randomly and data were analyzed using descriptive and inferential statistics, Pearson correlation, and multiple regression using SPSS 24.

Results: The results from the present study suggested a meaningful association between sleep quality, job burnout, job satisfaction and mental health of police staff. The meaningful relationship was reported between all variables under study including sleep quality and mental health, job satisfaction and mental health, and job burnout and mental health.

Conclusion: Effective factors on the sleep quality of police staff such as job stress, job burnout, and mental health are known to be so complicated that could be overlapped. It highlighted the importance of paying attention to sleep quality, job burnout, and job satisfaction in various work environments as it directly affected staff mental health.

Keywords: Sleep Quality, Job Burnout, Job Satisfaction, Mental Health
Effect of the Military Education Course on the Soldiers' Psychological Reactions in the Training Camp of Sepah Pasdaran of the Islamic Republic of Iran

Morteza Khaghanizadeh1, Amir Vahedian-Azimi2

* 1- Associate Professor, Baqiyatallah University of Medical Sciences, Nursing Faculty, Vanak Square, Mollasadra Ave., Tehran, Iran. - 2014mortezakh@gmail.com
2- Assistant Professor, Trauma Research Center, Nursing Faculty, Baqiyatallah University of Medical Sciences, Tehran, Iran - Amirvahedian63@gmail.com

Introduction: The bulk of the armed forces are soldiers and task forces; as the success or failure of combat operations and missions depends on the military's psychological reactions, rather than the reliance on the military equipment and weapons, they were considered as one of the most valuable treasures of the armed forces worldwide. The aim of this study was to examine the effect of a specific, context, and cultural-based military education course on the soldiers' psychological reactions in the Armed Forces of the Islamic Republic of Iran.

Methods: The semi-experimental research was conducted by one pretest-posttest group design. Through multistage cluster random sampling, 390 useful questionnaires were collected (response rate: 89%) from three educational garrisons. The 21-item depression, anxiety, stress scale (DASS-21) and demographic Questionnaires were filled out at the beginning and 60 days after going into the garrison and implementing the military education course. For creating the military educational course, three expert panels through the Delphi method were carried out and ultimately, a specific, cultural, and context-based military educational package was created.

Results: The results of Wilcoxon Signed-Rank test disclosed that stress (0.23 ± 0.56 vs. 0.05 ± 0.27; P < 0.001), anxiety (0.63 ± 1.00 vs. 0.14 ± 0.47; P < 0.001), and depression (0.44 ± 0.75 vs. 0.14 ± 0.45; P < 0.001) were significantly different before and after conducting the military education course on the soldiers' psychological reactions; moreover, the abnormal levels of anxiety (7.8% vs. 0.5%), depression (1.1% vs. 0.%), and stress (0.5% vs. 0.0%) before and after the performing of military education course had displaced significant differences according to the results of similar test (P < 0.05).

Conclusion: The specific, context and culturally based implemented military education course had desirable effects on the soldiers' psychological reactions. In order to continue the effects, continuing and
updating the content of military education courses can save the effects according to the up-to-date conditions and events.

**Keywords:** Armed Forces of Islamic Republic of Iran, Military Education Course, Semi-Experimental Study, Soldiers' Psychological Reactions.
Investigating the Role of M-Health Technology in Promoting Military Mental Health: A Systematic Review

Mohammadjavad Heydari¹, Saeid Shahraki², Hossein Mohamadebrahimi³, Sevda Ebadati⁴

¹- Student Student Research Committee, Faculty of Medicine, AJA University of Medical Sciences Tehran, Iran - mjheyidari313@gmail.com
²- Student Student Research Committee, Faculty of Paramedicine, AJA University of Medical Sciences Tehran, Iran - saeidshahraki@yahoo.com
³- Student Student Research Committee, Faculty of Paramedicine, AJA University of Medical Sciences Tehran, Iran - h71.ebrahimi@gmail.com
⁴- Student Student Research Committee, Faculty of Paramedicine, Tehran University of Medical Sciences, Tehran, Iran - sevda.ebadati20@gmail.com

Background: Mental health problems create challenges such as stress disorder, depression, violence, aggression, etc. for military veterans, military personnel, and their family members. M-health facilitates the needs and reduces the cost of treatment, increases the quality and accessibility of health services for military personnel and their families. Therefore, the purpose of this article is to review studies that role of m-health technology in improving the mental health of military forces.

Methods: This research is a systematic review study by searching the national and international databases such as PubMed, SID, google scholar, Science Direct, Magiran, and Springer during the period 2000 to 2018 with the keywords "M-health, Military forces, Mental Health and mental". In the first 257 articles found, and then in the next stage, 121 articles were extracted based on their relationship with the criteria of the study. Finally, 23 articles entered into the research.

Results: According to studies conducted in various countries, psychological assessment of soldiers and troops, mobile applications such as stress reduction programs have been effective. Therefore, according to the research, there has also been a significant reduction in post-stress disorder, depression, aggression, violence, and suicidal thoughts. Based on studies in this regard, m-health will have the potential to create a revolution in the health industry and will reduce the financial cost of the armed forces health sector.

Conclusions: The effective use of m-health in the health sector of the armed forces of Iran as the most important and sensitive organ of the country is very important and requires identification of opportunities and constraints, the formulation of strategic planning, along with the provision of technological, communication and executive infrastructure.

Keywords: Mobile Health, M-Health, Mental Health, Military, Military Forces
Exploring the Role of Personality Traits on Lifestyle Health Promotion in Military Forces

Gholamreza Mirzaie¹, Hossein Ali Mehrabi²

* 1- Ph.D. in Military Psychology, Behavior Neuroscience Institute, Baqiyatallah University Of Medical Sciences, Tehran, Iran - mirzaie2010@yahoo.com
2- Ph.D. in psychology, Assistant Professor, University of Isfahan, Faculty of Psychology and Education, Isfahan, Iran - mehrabihossein@yahoo.com

Introduction: Considering the necessity of assessing the effective factors in the lifestyle of military forces, the aim of this study was investigating the relationship between the personality traits and Health Promoting Lifestyle in a unit of military forces.

Methods: In a correlation design, 206 subjects in a military unit in Esfahan were selected randomly and evaluated by personality traits or military forces questionnaire (POSHAN) and Health Promoting Lifestyle Profile II (HPLP-II).

Results: The results of stepwise regression showed that among the personality factors, agreeableness can predict 4.2%, responsibility 8.6%, militarism 4.8%, openness 5.7%, and extraversion can predict 2.3% and all of these factors can predict 25.7% of variances of scores of lifestyle in military forces (p < 0.05).

Conclusion: These results emphasize on roles of personality factors in the lifestyle of military forces and identifying pathological factors of job experience, and military rank in their lifestyle.

Keywords: Health Promoting lifestyle, Personality Traits, Military Forces.
A Sequential Exploratory Mixed Method Study of Moral Decision-Making Education on the Moral Sensitivity of Working Nurses in Baqiyatallah Hospital

Ali Akbar Koohi¹, Amir Vahedian-Azimi², Abbas Ebadi³, Morteza Khaghanizadeh⁴

1- Instructor, Behavioral Sciences Research Center, Lifestyle Institute, Nursing Faculty, Baqiyatallah University of Medical Sciences, Tehran, I.R. Iran - Koohi@gmail.com
2- Assistant Professor, Trauma Research Center, Nursing Faculty, Baqiyatallah University of Medical Sciences, Tehran, Iran - Amirvahedian63@gmail.com
3- Professor, Behavioral Sciences Research Center, Lifestyle Institute, Nursing Faculty, Baqiyatallah University of Medical Sciences, Tehran, I.R. Iran - ebadi1347@bmsu.ac.ir
* 4- Associate Professor, Behavioral Sciences Research Center, Lifestyle Institute, Nursing Faculty, Baqiyatallah University of Medical Sciences, Tehran, I.R. Iran - 2014mortezakh@gmail.com

Introduction: Continuing nurses' activity has caused them to face the moral issues of the workplace more than other health care providers, which causes moral dilemma on the nurses. The moral dilemma can have adverse effects on the organization, the nurses, and the patients. The purpose of this study was to examine the effect of moral decision-making education on the moral sensitivity (MS) of nurses.

Methods: The sequential exploratory mixed method study was conducted in two phases; MS of 245 nurses with convenience sampling through cross-sectional design was collected (response-rate: 93%), the relationship between the MS of nurses with the socio-demographic variables were analyzed; according to the results, the second-phase was performed through a three-group randomized clinical trial. For this aim, among nurses whose mean score of their MS was lower than the average score of the questionnaire, 66 (Considering-10% drop-out) nurses were categorized in two interventions (lecture and group-discussion) and control groups by random assignment with six-block. The questionnaire was filled out before and one month after the intervention. Descriptive and inferential statistical tests were done by SPSS-11.

Results: The mean (SD) MS of nurses was 63.56 (10.43) with 8.8%-low, 82.1%-moderate, and 9.2%-high. Among 12 socio-demographic variables, employment type (P = 0.08), working shift (P = 0.06), and working experience (P = 0.05) had a significant relationship with the MS score. Socio-demographic variables did not have significant differences between the three groups before the intervention. The paired-sample t-test exhibited that group discussion (P < 0.001) had significant differences before and after the intervention but the differences in the lecture (P = 0.68) and the control group were not significant (P = 0.74) in
each group. With comparing the approach between the three groups, post-hoc analysis displayed that lecture (P < 0.001) and group discussion (P < 0.001) had significant differences but the differences in the control group were not significant (P = 0.15).

**Conclusion:** Moral decision-making education had significant and positive effects on the MS of working nurses; furthermore, for improving the moral decision-making level of working nurses, such educations were recommended.

**Keywords:** Baqiyatallah Hospital, Moral Decision Making, Moral Sensitivity, Nurse, Sequential Exploratory Mixed Method.
The Relationship between Self-esteem and Psychological Features in Veterans (Case Study): Chemical War Veterans of Shahrekord

Neda Ardestani-Samani

Introduction: Psychological symptoms and decreased self-esteem are common findings in chemical warfare victims. The present study was conducted to investigate the correlation between self-esteem and symptoms of anxiety and depression in chemical warfare veterans.

Methods: In a descriptive study, 134 chemical warfighters were selected randomly from Shahrekord city in 2017. Ianx (with abnormal signs of anxiety, 103), Iianx (without abnormal anxiety symptoms, 31), Iidep (with abnormal depression symptoms, 87), IIdep (without abnormal symptoms of depression, 47); Icom (lacking abnormal symptoms of anxiety and depression, 17), IIcom (with abnormal symptoms of anxiety or depression, 44) and IIIcom (with abnormal symptoms of anxiety and depression combined, 73) groups were diagnosed. Demographic characteristics, injuries, chemical injury percent, anxiety, depression symptoms, and self-esteem were evaluated in all participants.

Results: Eighty-six (64%) of the samples were male. The range of the injury percent and chemical injury percent were 10-70% (30 ± 12%) and 10-70% (27 ± 10%), respectively. The range and mean of self-esteem score of patients were 0 - 22 and 11.4 ± 4.6. Self-esteem scores in Ianx and Iianx groups (10.8 ± 4.5 vs. 13.6 ± 4.3) showed a significant difference (P = 0.003). Self-esteem score in Iidep and IIdep groups (10.00 ± 4.3 vs. 14.0 ± 4.0) showed a significant difference (P=0.001). The self-esteem score in Icom, IIcom and IIIcom groups (9.50 ± 4.3, 13.60 ± 3.0, and 14.0 ± 5.4 respectively) showed a significant difference (P=0.001).

Conclusion: Self-esteem and psychological symptoms in chemical warfare veterans are closely related. This finding can help psychologists and psychiatrists to improve the mental health of this population.

Keywords: Self-esteem, Psychological Symptoms, Veterans, Mental health
The effectiveness of Stress Management Training on Mental Health and Sleep Quality of Shift Worker Military Men

Rasoul Abhar¹, Mehdi Ashenagar², Mahmoud Movahedi³, Setareh Mohammadiyan⁴

* 1- MS in Health Education, Marine Medicine Research Center, Baghiyatallah University of Medical Sciences, Tehran, Iran - abhar19@gmail.com
2- MS in Industrial, Psychology Bandar Abbas, Iran - m.ashenagar63@gmail.com
3- Instructor, Department of Psychiatry and Behavioral Sciences Research Center School of Nursing, Baqiyatallah University of Medical Sciences, Tehran, Iran - mm.movahedi388@gmail.com
4- BS in Public Health, Health Center City of Bandar Abbas, Hormozgan University of Medical Sciences, Bandar Abbas, Iran - abhar19@chmail.ir

Introduction: Stress management is one of the effective methods on mental health and quality of sleep. The aim of this study is to investigate the effectiveness of stress management training on mental health and quality of sleep in shift worker military men.

Methods: This is a quasi-experimental study which was conducted among 70 shift worker military men. At first, two standard questionnaires of the general health (GHQ-28) and sleep quality (PSQI) were completed by both intervention and control groups. The intervention group participated in 8 sessions of stress management training and the control group received no intervention training. After the end of the last session of training, two questionnaires were completed by both groups again. Data were analyzed using descriptive statistics and independent and paired t-test using SPSS software version 21.

Results: The mean and standard deviation of the participants' age was 36 ± 2.3. At the beginning of the Study, general health and sleep quality scores of the intervention and control groups were not different (p > 0.05). There was no significant difference between sleep quality and general health in the control group, before and after the study. However, there was a significant difference between the two mentioned variables in the intervention group (p < 0.05). The results showed that stress management training increased general health and sleep quality of the intervention group.

Conclusion: Based on the results, it is recommended that stress management techniques should be applied to increase mental health and sleep quality among military men. Therefore, it is suggested that the health care providers of the military centers should have the necessary planning to implement appropriate training programs.

Keywords: Stress Management, Mental Health, Sleep Quality, Shift Work, Military Men
Studying the Relationship between Job Burnout and Quality of Life in the Islamic Republic's Army Personnel and Its Related Factors

Mohammad Ali Khoshnevis¹, Mohammad Mehdi Salaree²

¹- Assistant Professor, Baqiyatallah University of Medical Sciences - khosh1337@yahoo.com
²- Assistant Professor, Baqiyatallah University of Medical Sciences - mmsalaree@gmail.com

Introduction: Military forces are facing more stress than other organizations in terms of their special mission; which can lead to increased burnout and jeopardize their quality of life. The aim of this study was to determine the rate of job burnout and quality of life in the Islamic Republic of Iran's army personnel and its related factors.

Methods: This research was a cross-sectional descriptive correlational study. The samples included all of the Islamic Republic of Iran's army personnel who were selected by multi-stage random sampling method. Data were collected by demographic information, 22-item Questionnaire of Maslach Burnout Inventory (MBI) and short form 36-item Questionnaire of World Health Organization Quality of Life (WHOQOL) which is a general questionnaire and examines the quality of life in eight areas. The data were analyzed using SPSS 22 software.

Results: The findings showed that half of the samples were at a low level in terms of job burnout. The samples were at the lowest level in terms of emotional exhaustion intensity with 56.7 percent and severity of personality with 46.2 percent. They were in the highest position in terms of personal competence with 56.3 percent. More than half of the samples had a moderate-to-high quality of life. The results showed that there was a significant inverse correlation between age, work experience and grade with job burnout ($p < 0.05$) but a significant direct relationship with quality of life ($p < 0.05$).

Keywords: Job Burnout, Health-Related Quality of Life, Islamic Republic's Army, Military Personnel
Comparative Study of Mental Health in the Family of Military Personnel Practitioner in Islands Nazeat and out of it

Sadegh Barani¹, Zahra Zahadatpour²

* 1- MA General - s.barani1363@gmail.com
2- MS, University of Medical Sciences - Sabasaba8506137@gmail.com

Introduction: One of the biggest problems in modern life is occupational stress. The Family, as the basic and fundamental unit of society, is not immune to the negative effects of labor stress. One of the many stress-related jobs is the fact that a military person is far from a family. So, this research compares the mental health of military personnel practitioners in the Nazeat islands (Abu Musa, Greater and Lesser Tunbs, Sirri) with military personnel practitioners outside the islands. The purpose of this study was to determine the comparison of mental health in the family of military personnel practitioners in the Nazeat islands and out of it.

Methods: This is a descriptive study. Sample society was 65 families of military personnel practitioners in the islands (65 wives, 32 daughters, 28 sons; a total of 125) and 65 wives of military personnel practitioners outside the islands. The study was performed with SCL-9-R and a demographic questionnaire. Achieved data were analyzed by T-test.

Results: Comparing the results of mental health in wives of military personnel working in Nazeat islands and military personnel outside the islands indicates that there is a significant difference between the two groups from physical complaints, sensitivity in relations, depression, anxiety, aggressiveness, and sleep disturbance (p < 0.05 - p < 0.01). Comparison of mental health of military personnel’s wives with children working in Nazeat islands also showed a significant difference (p < 0.05 - p < 0.01) between them in physical complaints, depression, and anxiety.

Conclusion: There is a significant difference in the mental health of wives of military personnel employed in Nazeat Islands with wives of personnel working outside the islands, which showed the effect of labor stress in the family. The results of this study suggest that the authorities should pay more attention to the adverse effects and consequences of occupational stress on the family, especially of those working in plain islands.

Keywords: Mental Health, Family, Military personnel
Distributed Cognition Model in Trauma Teams
(Approach to an Effective Leadership Model)

Ahmad Askari¹, Alireza Elhami²

¹- Lecturer, Khatam al-Anbia Air Defense Academy - ya_gaem151@yahoo.com
²- Assistant Professor, Khatam al-Anbia Air Defense Academy - senobar.alre.e192@gmail.com

Trauma teams are among the teams with high levels of coherence to carry out recovery operations for injured people suffering from injury, shock, and severe injury. The purpose of this research is to explain, describe and predict the behavior of the leader on distributed cognitive processes to create a common mental model with the effects of increasing team capacity for excellent performance in complex and stressed environments. The statistical population consisted of emergency teams of hospitals in Tehran and the sample size was randomly selected from 30 members of these teams. All of the variables in the model were presented to professors by a questionnaire. Following the necessary corrections, validity was confirmed and reliability was calculated 0.86 with Cronbach's alpha. Structural equations were used for modeling. The findings of the research showed that effective leadership in trauma teams, through the effective distribution of cognitive skills, creates common mental models and increases team capacity to deal with complex and stressed situations. This research is philosophically within the scope of the positivist paradigm, in terms of applied orientation, combination (quantitative and qualitative), its type, library, and field.

Keywords: Trauma Teams, Distributed Cognition, Effective Leadership
Determining the Mental Health Indicators in Military Personnel

Khosro Mohamadi1, Khodabakhsh Ahmadi, Ali Fathi Ashtiani, Parviz Azad Fallah, Abbas Ebadi

* 1- Ph.D., Behavioral Sciences Research Center, Baqiyatallah University of Medical Sciences - kh.mohamadi@gmail.com

Introduction: Promoting mental health and preventing mental health problems are important tasks for military commanders and mental health professionals in the military organizations. This objective requires the establishment of information networks and systems enabling efficient data collection and determining indicators of mental health in military personnel. This study was conducted to determine the mental health indicators in the military personnel.

Methods: This study was performed based on Q methodology in six stages: 1. Development of Q Sample Statements, 2. Selection of participants (professionals in the military organizations) for the Q sort, 3. Q-sorting, 4. Data entry, 5. Statistical analysis (For the extraction of Q sorts, the principal components analysis method was used), 6. Factor interpretation.

Results: As a result, 32 mental health indicators were offered in three categories: mental health status, mental health factors, and spiritual and health behaviors, use of health services.

Conclusion: The results of this study can help the establishment of information networks and systems enabling efficient data collection in the field of mental health in the military organizations. Also, obtained indicators in this study can be used in regulatory reforms and policies, providing appropriate mental health services and mental health promotion in the military organizations, as well as updating and measuring mental health information.

Keywords: Mental Health, Mental Health Indicator, Q-methodology, Military, Military Personnel
Increasing the Cognitive Ability of Military Forces Based on Overcoming Stress by Performing the Proposed Protocol of the Proposed Neurogame Group

Hamed Aliyari¹, Hedayat Sahraei², Masoomeh Kazemi³

1- Ph.D., Neuroscience Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran - hamedaliyary@gmail.com
2- Ph.D., Neuroscience Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran - h.sahraei@bmsu.ac.ir
* 3- Ph.D., Neuroscience Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran - mkazemih@yahoo.com

Introduction: Today, computer games as an interactive medium have an important impact on the cognitive changes of people in society. On the other hand, governments seek to strengthen the capabilities of the perceptual-cognitive indicators of the military forces as well as the ability to overcome the difficult and stressful conditions of the military. Stress is the most important factor in undermining the will and confidence of combat forces. The goal of this plan is to increase the ability to overcome stress by reinforcing other cognitive indicators.

Methods: Thirty-two young adult volunteers, with the average age of 20 years, were assigned to this study. All subjects were asked to play the game, and the saliva samples were collected before and after the game to measure levels of cortisol and alpha-amylase. The salivary alpha-amylase and cortisol levels were analyzed using a specific kit and ELIZA test. Cognitive tests were also performed using PASAT software before and after the game to assess the cognitive-perceptual activity of the players. The brain waveforms were acquired by the brain signal recording EEG before and after the game for three days and a playtime of 90 minutes each day. Data were analyzed using R & MATLAB software.

Results: PASAT test revealed that mental health was significantly improved after the game. Also, sustained attention and response speed significantly improved after the game. The salivary alpha-amylase level and salivary cortisol level were significantly higher before the intervention. Also, the analysis of brain signals recorded before the game compared to the post-game indicated an increase in the mean surface of the stress index model and the focus of attention.

Conclusion: Delivering a targeted protocol can strengthen the cognitive capabilities of the military and increase the ability to deal with stress.

Keywords: Stress, EEG, Cortisol, Alpha Amylase, Cognitive Effects, Computer Games
The Effects of Problem Solving Methods on Emotional Reactions of Nurses in Baqiyatallah Hospital

Feryal Khamseh¹, Hadi Roohi², Abbas Ebadi³, Zahra Hajiamini⁴, Hossein Salimi⁵

* ¹ Instructors, Department of Psychological Nursing, Faculty of Nursing, Baqiyatallah University of Medical Sciences, Tehran, Iran - khamseh_110@yahoo.com
² MSc, Faculty of Nursing, Baqiyatallah University of Medical Sciences, Tehran, Iran - h_r1357@yahoo.com
³ Professor, Behavioral Sciences Research Center, Lifestyle Institute, Faculty of Nursing, Baqiyatallah University of Medical Sciences, Tehran, Iran - ebadi1347@yahoo.com
⁴ Assistant Professor, Health Department, Faculty of Nursing, Baqiyatallah University of Medical Sciences, Tehran, Iran - z_hajiamini@hotmail.com
⁵ Professor, Behavioral Sciences Research Center, Lifestyle Institute, Baqiyatallah University of Medical Sciences, Tehran, Iran - seyhossalimi@yahoo.com

Introduction: Today, stress, anxiety, and depression are known as the main emotional reactions in nursing which may cause tensions for both nurses and patients. The present study attempts to verify the effects of problem-solving methods on emotional-focused and problem-focused styles in nurses.

Methods: The present research is a quasi-experimental study. Subjects were recruited from the Baqiyatallah Hospital. In order to recognize nurses with moderate or high tension at work, the total sample (N = 413) were asked to fill in the Depression, Anxiety, and Stress Scale (DASS-21) and a problem solving coping style questionnaire. Then, nurses with either moderate or high scores in DASS 21 were randomly divided into two experimental groups (n = 34) and control group (n = 69). All subjects of the experimental group participated in a one-day workshop and were exposed to problem-solving style. Six weeks after the instruction workshop, both groups filled in the questionnaires (DASS-21 and problem solving coping styles) and the mean scores were compared. Data were analyzed with SPSS software program.

Results: The results showed that nurses had moderate or high emotional reactions (26% depression, 22% anxiety, and 48% stress). In addition, problem-focused solving style significantly reduced anxiety and stress mean scores. Significant results were found between pre and posttests between the experimental group and the control group for emotional reaction and coping style (P < 0/005). That is, problem-solving coping styles reduced emotional reactions in nurses. Finally, the results showed that problem-solving styles may reinforce the re-appraisal and look for social support in subjects.
Conclusion: According to the findings of this study, problem-solving styles may reinforce problem-focus reaction and decrease emotional reaction.

Keywords: Depression, Anxiety, Stress, Problem-Solving, Coping Styles.
Studying the Relationship between Mental Health and the Outbreak of Suicidal Thoughts in Conscripts

Shiva Pashaie¹, Parisa Hashemi², Alieh Pashaei³

* 1- Nursing Student, Student Research Committee, Nursing Faculty, AJA University of Medical Sciences, Tehran, Iran - shahin.pashaie@gmail.com
2- Nursing Student, Student Research Committee, Nursing Faculty, AJA University of Medical Sciences, Tehran, Iran - shahin.pashaie@gmail.com
3- Bachelor of Nursing, Ayatollah Taleghani Hospital, Urmia, Iran - shahin.pashaie@gmail.com

Introduction: Suicide is an intentional and conscious death. Prevalence level of suicide among military personnel (soldiery) has been estimated to be more than that of ordinary people. On the other hand, military personnel has more access to firearms. This is why the mental health of military personnel and conscripts has to be maintained and promoted. Unfortunately, mental examination of conscripts is an issue which has been less dealt with.

Methods: This research is an overview paper prepared through the study of related articles in databases such as Google Scholar, PubMed, Magiran, and SID during 2010-2018, with “soldiers”, “mental health”, “suicidal thoughts”, and “self-injury” as the keywords used.

Results: There is a significant relationship between aggressive behavior and inappropriate psychological status with the suicide of conscripts (p < 0.05, r = 0.001). Also, in conscripts with a history of self-injury and harmful behavior towards themselves or others, suicide level is higher.

Conclusion: Among factors related to suicide, psychiatric disorders may be referred to as the most important one. There are numerous conscripts suffering from unrecognized mental problems. Thus, periodic psychological evaluation of conscripts and holding training sessions, as well as consulting sessions for them, is of specific importance. In general, higher levels of social support and life expectancy in conscripts will result in a decrease of suicidal thoughts in them; and, this requires short and long-term programming.

Keywords: Conscript, Mental Health, Suicidal Thoughts, Self-injury
Metabolic Syndrome and Mental Health in Post-Traumatic Stress Disorder Patients

Hassan Shahmiri¹, Vahid Donyavi², Seyyed Behnam Hashemi Urimi³, Arsia Taghva⁴, Amir Mohsen Rahnejat⁵

* 1- Assistant Professor, Dept. of Psychiatry, AJA University of Medical Science, Tehran, Iran - shahmiry@yahoo.com
2- Associate professor, Dept. of Psychiatry, AJA University of Medical Science, Tehran, Iran - Donyavi_vahid@yahoo.com
3- Assistant Professor, Dept. of Medical Science, School of Tehran University of Medical Science, Tehran, Iran - Rasa13941388@gmail.com
4- Associate Professor, Dept. of Psychiatry, AJA University of Medical Science, Tehran, Iran - ataghva@yahoo.com
5- Assistant Professor, Department of Clinical Psychology, Faculty of Medicine, AJA University of Medical Sciences, Tehran, Iran, - arahnedjat@yahoo.com

Introduction: Post-traumatic stress disorder (PTSD) is an abnormal physiologic and psychological reaction in persons with a severe traumatic history. In recent studies, the relationship between PTSD and some other diseases, apparently unrelated to psychological situations, such as cardiovascular diseases, diabetes, and metabolic syndrome has been revealed. Thus, the aim of this study was to survey the prevalence of metabolic syndrome and mental health in PTSD patients.

Methods: The research design was a retrospective cohort study. Subjects consisted of 142 Iran-Iraq war veterans with PTSD diagnosed by 2 psychiatrists, aged 40-60 years old and the control group consisted of 153 veterans without PTSD. Data were collected using questionnaires, physical exams, and laboratory tests. Independent t-test and Chi2 test were used for statistical analysis.

Results: Prevalence of metabolic syndrome was 45.1% in the PTSD group and 17% in the control group. In addition, blood pressure, triglyceride and fasting blood sugar in the PTSD group were higher than the control group significantly. The survey of mental health showed that PTSD patients had psychiatric disorders, significantly.

Conclusion: PTSD patients are more prone to metabolic syndrome and psychiatric disorders than the control group.

Keywords: Metabolic Syndrome, Mental Health, Post Traumatic Stress Disorder
Modeling of Factors Affecting Sexual Function in Male Military Personnel

Ali Sheikholislami¹, Seyedhossein Salimi², Mehdy Rabiee³

Introduction: Sexual dysfunctions result from the physical and emotional inability to communicate with the sexual partner and disorders in the body and mental health. In Iran, there seems to be no study to investigate the factors affecting sexual dysfunction in military forces. The aim of this study was to identify the factors affecting sexual dysfunction in Iranian military personnel.

Methods: This study was conducted in two stages. In the first stage, 26 experts of sexual dysfunction were interviewed and the factors affecting the sexual performance of military personnel were extracted by encoding and content analysis. In the second stage, the demographic characteristics questionnaire, Male sexual function questionnaire, Quality of life questionnaire, General Health Questionnaire (GHQ), Job Stress Questionnaire (HSE), Job Satisfaction Questionnaire (JDI), Self-concept Questionnaire, Marital intimacy Questionnaire and post-traumatic stress disorder Questionnaire were completed by 292 Army personnel of the Islamic Republic of Iran who were serving in units of Tehran.

Results: Factors affecting the sexual performance of military personnel were codified in four categories of individual factors, factors related to sex, factors related to family and spouse, and factors related to the military job, and a conceptual model was developed. Then, based on the articles and opinion of the experts, the most important factors influencing sexual function in the form of a model were developed and in the second stage, this model was analyzed using the information obtained from the questionnaires in the Amos software and its fitness was confirmed. (CFI = 1, TLI = 1.06, RMSEA = 0.000)

Conclusion: In this model, job stress, anxiety, physical self-concept, post-traumatic stress disorder, and depression affect sexual function and sexual function also affects the quality of life, job satisfaction, and marital intimacy. Post-traumatic stress disorder had the greatest impact on the sexual function.

Keywords: Sexual Dysfunction, Post-Traumatic Stress Disorder, Depression, Anxiety, Quality of Life, Job Stress, Physical Self-Concept, Job Satisfaction
The Study of the Importance of Psychological and Cognitive Health in Military Medicine

Behnam Shokati¹, Saeed Shiralizadeh², Robabeh Haji Parvaneh³

* 1- Expert of Airforce Health Directorate - Behnamshokati@gmail.com
2- Expert of Airforce Health Directorate - Behnamshokati@gmail.com
3- Senior Expert of Airforce Health Directorate - Behnamshokati@gmail.com

Introduction: The key to the advancement, dynamism, and excellence of any society is to have healthy and effective elements in society. Today, military personnel face more occupational issues in terms of specialist missions and have more psychological problems than other employees. For this reason, the concept of occupational stress and high work pressure in any profession is not more obvious than military complexes.

Methods: This review is based on the use of information in the internet system and internal information databases such as IRANMEDEX, SID, and NoorMag as well as the Google Scholar search engine using the keywords: military, psychological, mental health, without any time limit. In the end, 25 articles were reviewed.

Results: Based on the study by Minoo Assad Zandi and her colleagues, the factors that differentiate the military forces from other organizations in this regard are: 1- The mission of the defense of the country; 2- The nature of this organ which has more serious consequences than other environments; 3- The scope of military behavioral science programs. Due to the nature of the military personnel's occupation, there are many psychological abnormalities that will be large and relatively large in the future.

Conclusion: Based on the study of Esfandiar Azad Marzabadi, mental health is related to job satisfaction. Job Satisfaction affects the way of working, relationships with colleagues and direct supervisor, salaries, and benefits. The performance of military forces is affected by the level of job satisfaction that the organization creates for its employees. This can protect them from mental harm with increased attention and management, mechanisms can be used to increase the physical and mental health of the staff, as well as increase the beliefs of individuals with the aim of promoting military personnel.

Keywords: Military, Psychological, Mental Health
Investigating War Films in Terms of Impact on People with (PTST) from the Viewpoints of Escalation and/or Catharsis

Azadeh Sohrabi

* 1- MA student Journalist - azadehsoh57@gmail.com

In 2017, a film was released called “Dunkirk”, directed by Christopher Nolan. In the meanwhile, another film was presented at Fajr Film Festival (FFF) called “Tange Abu-Quraib” in 1396, directed by Bahram Tavakoli. Both films were recognized costly and as a result, indicated that there are still fans for such genre of films worldwide; fans some of whom may have experienced war closely and suffer from post-traumatic stress disorder (PTST). This paper aims at investigating the effect of war films on war survivors, suffering from the (PTST) from the viewpoints of escalating or catharsis. Two methods of data collection and data analysis have been employed in this study; the first is based on the literature review which is descriptive; the second which is considered as the complementary method is based on accessible case sampling, using 30 male cases between 40 and 60 years of age; 10 of whom were war survivals suffering from the (PTST); the next 10 participants were war survivals not suffering from the (PTST) and the last 10 participants neither were suffering from the (PTST) nor participated in war, sampled through quantitative analysis based on descriptive statistics tests, communication analysis as well as the interpretive analysis. Accordingly, the research tool includes structured interviews that were analyzed through quantitative analysis based on descriptive statistics tests, communication analysis, and interpretive analysis. Moreover, the Beck anxiety questionnaire was also used as an assessment after the interview. From the results, it can be deduced that people with (PTST) avoid watching war films, as well as those war survivals with no (PTST) and even normal people who have not participated in the war. Also, the anxiety of cases increases dramatically while interviewing and recalling scenes from war movies. Consequently, the findings of this study reveal that despite the emphasis of art on catharsis, war films negatively affect people with (PTST) and/or even normal people.

Keywords: PTST, War, Cinema, Movie, War PTST
Self Help Education for Disrupted Veterans with Migraine

Manijeh Firoozii

* 1- Assistant Professor, Department of Psychology, Psychology and Education Science Faculty, University of Tehran, Tehran, Iran - mfiroozy@ut.ac.ir

Introduction: Migraine is a neurological disturbance that is characterized by episodic severe, recurring, and painful headaches. The incidence of migraine in veterans is 2 to 4 times more than the general population. Veterans with migraine are more than twice as likely to have psychological problems and emotional disruption such as depression and PTSD. The aim of this study was to examine the efficacy of Self Help Education (SHE) in Migraine management in veterans.

Methods: Nineteen veterans with migraine comorbid with major depressive disorder (MDD) participated in an SHE course. Veterans completed assessments of depressive, general functioning, and headache-related disability, after three weeks in the workshop. Changes were assessed using the paired t-test and Wilcoxon signed-rank test. Veterans also completed semi-structured qualitative interviews documenting their experiences with the workshop after one month following the intervention. Qualitative data were analyzed by phenomenological techniques.

Results: Veterans significantly improved in depressive symptoms, general functioning, and headache-related disability after intervention and follow-up compared to the baseline. Additionally, veterans significantly improved in pain acceptance and engagement in valued life areas. During interviews, veterans revealed that the migraine education helped them feel more knowledgeable about their condition, and this empowered them to manage their headaches better.

Conclusion: Findings of this study demonstrate SHE course is an acceptable intervention for the management of migraine symptoms. The SHE component focused on increasing the awareness about the role of stress in uncontrollable pain and ways to manage this stress. For some of the participants, however, the role of stress in exacerbating the migraine needed to be highlighted more. Veterans reported that the communication with other migraine patients was an opportunity for them to express the suffering, be understood by others, and find a cooperative solution for similar problems.

Keywords: Veterans, Self Help Education (SHE), Migraine, Depression, phenomenology.
Investigating the Status of Mental Health and Its Relationship with the Individual-Social Characteristics of Soldiers of a Garrison in Mashhad in 1397

Milad Ali Akbari¹, Masuod Zahmatkesh², Mohammad Keshmiri³

* 1- Nursing Nezaja - miladaaa72@gmail.com
2- Doctor Nezaja - Dr.zahmatkesh@yahoo.com
3- Doctor Nezaja - Mohammadkeshmiri346@gmail.com

Introduction: The healthy mental status of soldiers increases their immunity to problems and their adaptation to the military environment. The importance of paying attention to the mental health of the military forces is clear. As much as weapons and equipment and military strategies are necessary for the battle, the mental health of the combatant and its related factors are important. The aim of this study was to determine the level of mental health and its relationship with the individual-social characteristics of soldiers of a garrison in Mashhad in 1397.

Methods: This is a cross-sectional and descriptive-analytic study that was performed on 400 soldiers with an average age of 19.8 ± 1.8 in a random sampling method. Data were collected using a General Health Questionnaire (GHQ) and a self-supplementary self-assessment questionnaire. Data analysis was performed using SPSS version 21 software.

Results: The statistical analysis with the alpha value of 0.05 showed that 27.1% of the soldiers had psychological problems. Married soldiers suffered from anxiety disorders more than single soldiers, and those who were being households who had a post-secondary education and had a history of self-harm had a greater social and depression than others. However, no significant relationship was found between age and being native with mental health.

Conclusion: Based on this research, various psychological problems of soldiers were identified and through attending training classes and counseling and spiritual counseling strategies, different educational institutions were given for anxiety control and improvement of social function and increases of happiness.

Keywords: Mental Health, Individual-Social Characteristics, Soldier.
Investigation of Secondary Traumatic Stress and Mental Health in Wifes Veterans in Iran

Ali Nasiri¹, Gita Kholghi², Leila Valizade³, Nosaybe Yazdanpanah⁴, Seyed Abbas Bagheri Yazdi⁵, Jafar Mohsenifar⁶, Jafar Mirzaee⁷

* 1- GP, General Practitioner, Researcher, The Leadership of Sadr Psychiatric Hospital, - dr.alinasiri112250@gmail.com
2- M.S of Clinical Psychology, Sadr Psychiatric Hospital - kholghi.gita@gmail.com
3- GP, General Practitioner, Researcher - jafarmirzaee48@gmail.com
4- M.S of Child Clinical Psychology, Sadr Psychiatric Hospital - jafarmirzaee48@gmail.com
5- MS Clinical Psychology, Mental Health Researcher - sa.bagheri@yahoo.com
6- M.S in Positive Psychology, Sadr Psychiatric Hospital - jafarmohsenifar@yahoo.com
7- Ph.D. Student of Health Psychology, Kharazmi University, Chief of Education and Psychology in Sadr Psychiatric Hospital

Introduction: War as a severe mental stressor has psychological, social, and cultural implications, which affects the burden of mental disorder on the spouse, children, and the relationships of individuals and even the next generation. Mental health and secondary stress indicate that some spouses, children, and caregivers of mental illnesses, especially those with PTSD, do not have proper mental health and symptoms of secondary stress are evident (Farshid Farf, 1992, Anissi, 1998, Hemmati 2000, Bahrain 2002, Dejkam 1382, Mirzaei 1386, Yazdanpanah and Mirzaei 1389, Fiqli 1995, Pearlman 1999, Solomon 2005, Link 2007, Nut 2009, Foa 2009, Johnson 2013, APA 2013, Kane, 2014 Kaplan and Wadeok 2015). According to the study of Cricch and Miska (2017), the symptoms of post-traumatic stress disorder, especially depression, have a significant effect on the parent-child relationship and have an adverse effect on their child’s mental health (Bryant et al. 2018). Also, the study of Kianpur Pour, Rahmanian, Mojahed, Amuchiye (2017) showed an increase in the rate of the second post-traumatic stress and the severity of somatic symptoms in spouses of affected veterans.

Methods: This is a cross-sectional study. Wives of veterans were referred to hospital and counseling centers in 12 provinces in Iran. Instruments of this research are GHQ-28 and STSS and Demographical questionnaire. Data were analyzed by ANOVA and using SPSS 23 software.

Results: The results show that among 753 spouses of neuropsychiatric veterans, 48.8% have mental disorders and 51.2% have secondary stress symptoms. The most prevalent symptoms are depression, poor function, verbal aggression, burnout, fatigue, psychological disturbance, and somatization.
Conclusion: It seems that psychiatric interventions (drug therapy) and psychology (psychotherapy) and psychoeducation interventions for spouses, family therapy sessions and recreation camps are among the effective interventions in the prevention and emergence of psychiatric disorders.

Keywords: Mental Health, Wifes, Secondry Traumatization, PTSD,
Disaster Management and Military Traumatology
Comparison of Disease Prevalence after Natural Disasters in 2016 and 2017, Sri Lanka

Duminda Indunil Samarawickrama

* 1- MBBS, Naval Hospital Northern Command, Sri Lanka - indunilduminda1974@gmail.com

Introduction: Tropical Storm Roanu that struck Sri Lanka on 15 May 2016 caused severe flooding and numerous landslides, particularly in the west of the country. These are reportedly the worst floods in 25 years. The 2017 Sri Lanka floods resulted from a heavy southwest monsoon, beginning around 18 to 19 May 2017. Flooding was worsened by the arrival of the precursor system to Cyclone Mora, which caused flooding and landslides throughout Sri Lanka. During the final week of May 2017, Sri Lanka navy deployed immediate disaster management teams including medical teams with other sister forces.

Methods: This is a retrospective study based on secondary data of the amount of medicines issued at field medical clinics in the flood-affected areas. The first study sample consisted of analysis data of 2153 prescriptions in May 2016 and the second convenient study sample consisted of 101 cases treated in June 2017, immediately after natural disasters. The analysis was done on drug classification of updated British national formula and statistically analyzed using frequency distribution.

Results: The first sample consisted of 24.9% prescriptions including medicines of the central nervous system, infections represented 21.1%, 17.5% gastrointestinal system medicines. 12.7% of nutrition preparations, 12% of represented respiratory system medicines, acute traumatic injuries management represented in 6.24%, 4.5% of prescriptions of skin, and 2% represented eye and or pharynx, medicines for hypertension, ischemic heart disease consisted 1.4% prescriptions and another 1% consisted medicines of the endocrine system. Analysis of the second sample revealed that medicines of the central nervous system represented 14.85%, gastrointestinal system 16.83%, respiratory system 17.82%, infections 16.83%, endocrine system 9.9%, nutrition preparations 4.95%, muscular skeleton system 17.82% and skin 0.9%.

Conclusion: Outlining the risk factors for outbreaks after a disaster, reviewing the communicable diseases and care of noncommunicable diseases are likely to be important and establish priorities to address acute health needs in disaster settings.

Keywords: Natural Disasters, British National Formula
Hemorrhagic Shock and Fluid Resuscitation in the Combat Casualties

Ali Rahmani¹, Mahdiye Nejadshafiee², Milad Rezaeyeh³, Esmail Heidaranlu⁴

1- Associate Professor, Military Research Center and Department of Military Nursing, Nursing Faculty, Baqiyatallah University of Medical Sciences, Tehran - rahmani4143@gmail.com
2- Teacher Department of Military Nursing, Nursing Faculty, Baqiyatallah University of Medical Sciences, Tehran, Iran - nejadshafiee.mahdiye@gmail.com
3- Student, Department of Military Nursing, Nursing Faculty, Baqiyatallah University of Medical Sciences, Tehran, Iran - miladrezaiye73m@gmail.com
4- Assistant Professor, Military Research Center and Department of Military Nursing, Nursing Faculty, Baqiyatallah University of Medical Sciences, Tehran - eheidaranlu@gmail.com

Introduction: In military casualties, most of the injury is penetrating trauma that is associated with extensive external and internal bleeding. The cause of death in injured military personnel on the battlefield has been reported to be bleeding that usually occurs in the early hours. The mortality reduces by sealing the bleeding and fluid resuscitation with the correct type and amount. This study was performed to know the correct method of fluid resuscitation on wounded combatants in military events.

Methods: This study was a narrative review which reviewed the studies published between 2000 and 2018 by using electronic, academic and scientific resources such as PubMed, Scopus, Ovid and etc. With keywords: combat casualties, hemorrhagic shock, and fluid resuscitation.

Results: Bleeding is the main cause of death in the military trauma. Crystalloids are used commonly as the first line of fluid resuscitation in hemorrhagic shock. Crystalloids should be applied with cautious and to maintain systolic blood pressure in the range of 80-100 mmHg. Increased use of crystalloid causes coagulopathy. Colloid fluids and blood products used to enhance the body's ability to maintain the process of blood clotting and also improve the carrying capacity of the blood oxygen.

Conclusion: The most important strategy for volume replacement in bleeding and hemorrhagic shock is to achieve target blood pressure and the presence of radial pulse. Fluid and intravascular volume resuscitation should start with crystalloid fluids. But the systolic blood pressure should not rise higher than 100 mmHg and then the supply of blood products is emphasized. The class 3 and 4 of hemorrhagic shock has a need for blood transfusion, including the Packed Red Blood Cell (PRBC), Fresh Frozen Plasma (FFP) and Platelet with 1.1.1 ratio. We recommend a target Hb of 7 to 9 g/dl.

Keywords: Military Casualties, Hemorrhagic Shock, Fluid Resuscitation,
The Wounded Trauma Characteristics and Modeling Intervene Test Study Based on Two Tornadoes in China

lulu zhang

Based on two surveys of tornadoes in Yancheng and Chifeng, the construction of the database of tornado injuries is conducive to finding out the characteristics of tornado injuries; the construction of the database of tornado victims is conducive to the identification of the impact factors of tornado injuries. Based on the multi-agent modeling approach, we build an AnyLogic-based tornado trauma model and fill in the model gap of the tornado trauma study. By carrying out model simulation and model intervention tests, it is beneficial to improve the trauma prevention strategies for the tornado victims. (1) Based on the records of wounded patients of tornados in 6 hospitals in Yancheng and Chifeng, the injury characteristics were studied in three aspects: injury sites, injury types, and injury severity. The AIS (Abbreviated Injury Scale) was used to score the injury severity. Based on different disaster areas and EF scale areas in Yancheng City, geographical information systems (GIS) and non-parametric test methods were used to analyze the difference of the wounded density and injury severity between different regions of the tornado. (2) Based on surveys of victims in Yancheng and Chifeng, Chi-square test and logistic regression were used to analyze the influencing factors of the injury from three aspects: demographic characteristics, affected environment, and individual behavior. (3) Based on Multi-agent modeling method and AnyLogic simulation modeling software, a tornado trauma model was constructed and model simulation and intervention tests were conducted. Results: Trauma characteristics and GIS distribution of the tornado wounded. Factors influencing the trauma of victims of tornadoes. Judging from the comparison of two tornadoes, the “hardware” facilities, such as the level of income and the ability to find safe buildings, had a significant impact on the injury in high-intensity Yancheng Tornado (p < 0.05). The building of the tornado trauma model using AnyLogic and Intervention tests.

Keywords: Tornado, Trauma, Influencing Factors, Multi-Agent Modeling, Intervene Test
Evaluation of Hospital Preparedness Assessment Tools in Disaster: A systematic review

Esmail Heidaranloo1, Abbas Ebadi2, Hamidreza Khankeh3, Arman Zarbi Zadeh4, Mohsen Molla Hadi5 Mohammad Pourebrahimi6 Ali Rahmani7 Masoomeh Rashidi8

1- Assistant Professor, Trauma Research Center, Baqiyatallah University of Medical Science, Tehran, Iran - eheidaranlu@gmail.com
2- Professor, Behavioral Sciences Research Center, Lifestyle Institute, Nursing Faculty, Baqiyatallah University of Medical Sciences, Tehran, I.R. Iran - ebadi1347@yahoo.com
* 3- Professor, Ph.D., Professor at University of Social Welfare and Rehabilitation Sciences, Post-doc Research Fellowship in Health in Emergency and Disaster Department of Clinical Science and Education Karolinska Institute Södersjukhuset (KI SOS) - Hamid.khankeh@ki.se
4- Lecturer, Trauma Research Center, Baqiyatallah University of Medical Science, Tehran, Iran - armanzarbizadeh@gmail.com
5- Assistant Professor, Trauma Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran - mmollahadi@gmail.com
6- Assistant Professor, Trauma Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran - pourebrahimi62@gmail.com
7- Associate Professor, Trauma Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran - rahmani4143@gmail.com
8- Lecturer, Trauma Research Center, Baqiyatallah University of Medical Science, Tehran, Iran - masumerasid@gmail.com

Introduction: Hospital readiness measurement in the face of disasters is one of the best methods for assessing the status of hospitals. The purpose of this study was to examine the available tools for assessing hospital readiness in dealing with disasters and to examine the strengths and weaknesses of these tools.

Methods: In this systematic review, the full text of 123 studies after the search of databases and 17 post-hand searches were reviewed. Data were gathered from studies that included Hospital Disaster Readiness Measurement Instruments from 2000 to 2014, based on PRISMA's GuideLine. COSMIN study criteria were used to assess the quality of the instruments from the WHO readiness criteria and in terms of psychometric features.

Results: Out of these studies, only 33 articles had inclusion criteria; in these articles, 11 instruments were identified to assess hospital preparedness in disaster situations. The tool directly evaluated the structural, non-functional, and functional vulnerability of different parts of the hospital, while one of the tools rated another criterion as an indicator of hospital readiness. Most tools only examined the vulnerability of a hospital in both structural and non-structural aspects and did not pay close attention to functional readiness.
Conclusion: Due to the limitations of the tools in the psychometric process, the weakness of the theoretical model or the weakness in the design of the tool based on the empirical findings, as well as the importance of measuring and assessing hospital preparedness in dealing with disasters, the field of health requires the design of experience-based tools. The owners of the process and the hospital's experts and the scientific process are instrumental and validate these tools.

Keywords: Hospital Preparedness, Tools, Disasters, Systematic Review
Development of Instructional Curriculum of Maternal and Newborn Care for Army Health Providers in Disaster

Leila Poursoleiman, Shahla Aliyari

1- MSC AJA University - moonlight lp_2007@yahoo.com
2- Assistant Professor AJA University-nursing faculty - aliyar_shah@yahoo.com

Introduction: Health care providers, as part of the crisis team, are providing maternal and infant care services in critical situations. Therefore, determining their educational needs and curriculum development is the basis for planning in this field. Purpose: The purpose of this study is to develop a curriculum for the care of maternity and newborns for healthcare providers in the army forces.

Method: In this research, the purpose and nature of the research were applied and in terms of the research method, a multi-stage quantitative research was carried out in two stages. In the first stage, a researcher-made questionnaire was used to assess the needs of health care providers. In this phase, 208 nursing and midwifery care providers in 9 hospitals of the army forces in the city of Tehran participated in the study by census method in 2017. In the second stage, after presenting the proposed curriculum, in order to determine the desirability of the program, the Delphi method was used in two rounds. In the second stage, 12 experts from nursing, curriculum, reproductive health and midwifery were selected through targeted sampling. Finally, the curriculum developed at an Expert Panel meeting was reviewed and finalized. Data were analyzed using descriptive and analytical statistics in SPSS v.16 software.

Results: Based on the needs assessment of army forces health service providers in Tehran, a curriculum for maternal and newborns care in disasters was developed based on the kern 6-step process. The desirability of the curriculum developed by the Delphi method was approved by experts in two rounds with a 90% consensus.

Conclusion: The curriculum developed in this study has practical and interdisciplinary characteristics and has been considered in its development to international knowledge and experience and its localization, so it can play a role in raising the level of knowledge of the army services health service providers to provide services to mothers and newborns in distress.

Keywords: Disasters, Pregnant Women, Newborns, Health Care, Curriculum
Hematuria and Urinary Tract Damage in Blunt Abdominal Trauma: A Systematic Review Article

Mohammad Ali Momeni¹, Parisa Hashemi², Fatemeh Moradi³

Introduction: There is a controversy about the evaluation of patients with trauma. Bleeding in the urine is called hematuria, which is known to be in excess of 5 RBCs in HPF (the largest microscope magnification) in the urine. Hematuria is a common finding in blunt abdominal traumas, and traditional thinking about hematuria is that hematuria means trauma to the genitourinary system. The aim of this study was to determine the association between hematuria and urinary tract damage in blunt abdominal trauma.

Methods: This article is a systematic review through internet databases (sid. Google scholar. Isc) with keywords (blunt abdominal Trauma, hematuria, kidney injury), from 24 articles which have been published in the years 1982 to 2015.

Results: In a study performed on 1,175 patients with a trauma (5.2%) who had a clear or microscopic hematuria and (13.8%) people with Blunt abdominal trauma who had severe kidney trauma, there was a significant relationship between severe hematuria and severe kidney trauma. In a study that was performed on 590 people with blunt trauma in the non-shocked kidney, (58%) had microscopic hematuria, and (56.6%) others were injured. Most patients who had microscopic hematuria, after a blunt trauma, actually suffered from kidney damage. In a study that was performed in a traumatic facility and all patients with any grade of hematuria under IVP and cystography, (8.3%) had abnormal cystography, (77%) had clear hematuria, (3%) were under aggressive therapies and (0.6%) nephrectomy patient.

Conclusion: Due to studies in blunt traumas, the presence of blood in the urine is an important finding. It has a significant relationship with genital tract damage, but the presence of hematuria is not necessarily caused by kidney damage, but it is also due to bruising. The obvious hematuria has a stronger relationship with renal injury.

Keywords: Blunt Abdominal Trauma, Hematuria, Kidney Injury
Regeneration of Damaged Intervertebral Disc

Masoud Ghorbani¹, Mohammad Vasei², Jafar Ai³, Mohammad Reza Nourani⁴, Mahmood Azami⁵, Batool Hashemibeni⁶

1- Assistant Professor, Applied Biotechnology Research Center, Baqiatallah University of Medical Sciences - dr.ghorbani62@yahoo.com
* 2- Associate Professor, Tehran University of Medical Sciences - m.vasei@tums.ac.ir
3- Professor, Tehran University of Medical Sciences - Jafar_ay2000@yahoo.com
4- Professor, Applied Biotechnology Research Center, Baqiatallah University of Medical Sciences - nrnr41@yahoo.com
5- Associate Professor, Tehran University of Medical Sciences - m-azami@tums.ac.ir
6- Associate Professor, Isfahan University of Medical Sciences - hashemibeni@med.mui.ac.ir

Introduction: Intervertebral disc degeneration (IVD) is recognized to be the leading cause for chronic low back pain (LBP). Herniation of IVD and its degeneration are the major reasons of low back pain, which occur because of structural damage of disc and is caused by herniation. In support forces that carry heavy military equipment, heavy equipment can lead to LBP or herniation. In war and conflicts, bullet and crack can damage spine and discs and lead to disability. Current methods for treatment of degeneration are artificial disc and prostheses but they cause limitation of movement and are invasive. The advanced method is tissue engineering that cell hydrogel and growth factor is injected into the disc and repair it. Injectable hydrogels have various applications. Using of stem cells on hydrogel increase rate of repair and differentiation to cells of the disc that caused of secretion of extracellular matrix in degenerated disc and repair. A goal of this study was Synthesis hydrogel similar to the extracellular matrix of disc named injectable compound hydrogel and with NP and BMSc injected to a degenerated disc of animal rabbit and survey effects of it in the regeneration of degenerated disc.

Methods: In vitro study: compound hydrogel synthesis with chitosan, B glycerol Phosphate, collagen, gelatin, hyaluronic acid, chondroitin 6 sulfate, and fibroin silk. Rheology, MTT, trypan blue, SEM and RT-PCR were used for evaluation of hydrogel. Discs 3-6 in animal model degenerated using by needle and injection of papain. Bone marrow mesenchymal stem cells (BMSc) extracted from rabbit and injected to degenerated disc. Finally, effects repair of cells and hydrogel evaluated by MRI, histology, IHC, RT-PCR.

Results: Our result showed that NP hydrogel is injectable and cytocompatible. RT-PCR indicated significant differences between the samples and the control group. Histology and immune fluorescent indicated NP cells-hydrogel increase production of extracellular matrix.
MRI indicated signal intensity and high of disc increase in the hydrogel-NP group.

**Keywords:** Intervertebral disc, degeneration, stem cells, NP cells, Herniation, formed forces
The Importance of Crisis Management and Readiness of Military Hospitals in Disasters

Mahin Kakolarimi¹, Maryam Otoufi²

Introduction: Crisis management is an orderly and systematic approach based on alertness, managerial sensitivity, and understanding the importance of careful planning and organizational preparation, which empowers organizations in the face of disasters. The main purpose of crisis management plan for hospitals, and readiness of medical centers before, during, and after disasters is to provide rapid and early health cares and to reduce disaster-induced harm, mortality and complications. According to the World Health Organization, disaster is a state of instability or total eradication of a social system to the total destruction of infrastructures. Disasters can be divided into three groups: natural, technology-related, and political and military disasters, and based on the international references, and Iran's location in the Middle-East, all three groups of disasters can be seen in Iran.

Methods: The present review study was conducted on the basis of previous studies found in reliable sites and databases.

Results: According to the few studies conducted on the readiness of military hospitals, and the importance of the presence of armed forces in disasters, military hospitals appear to be poorly prepared. Due to the importance of readiness of military hospitals to help the injured and potential victims of disasters, and given the likelihood of future disasters, the need for a better response is increasingly felt to help reduce the impact of disasters through appropriate and consistent measures and plans in all dimensions.

Conclusion: First, crisis management experts in the relevant authorities should have a comprehensive and uniform understanding of disaster, and then crisis management training plans should be developed according to hospitals and characteristics of their personnel.

Keywords: Crisis Management, Disasters, Military Hospitals, Preparedness
The Vital Role of Military Blood Bank and Laboratory in Disaster and War

Mahdi Ghorbani¹, Saeideh Sohrabi²

¹- Assistant Professor, Faculty of Paramedicine, AJA University of Medical Sciences - m.ghorbani@ajaums.ac.ir
²- Student of MSc, Paramedical College, Shahid Beheshti University of Medical Sciences - mahdi2614@gmail.com

Introduction: One of the principal problems in directing interventions, instituting preventive measures, and managing cases appropriately in disaster situations is the lack of basic information from the affected area. In particular, basic information about the possible emergence of communicable diseases is difficult to obtain in disaster-affected zones. Rapid diagnosis and management of these conditions in critical situations will play a crucial role. The factors that can affect the emergence and spread of contagious diseases include: Changes in population density, change in the ecological balance, disruption and contamination of the water supply and sanitation services, which are potential sources of infectious disease relative reduction in the response capacity of the health services network due to damage to the health services infrastructure or due to increased demand disorganized public health programs.

Methods: The impact of disasters on health infrastructure and services requires specific emergency measures to ensure basic services to care for the affected population, and reestablish the surveillance system. In order to guarantee effective intervention by laboratories and blood banks during a period that is characterized by disorganized interventions, inadequate definition of the different actors’ roles, and late confirmation of outbreaks, it is necessary to reduce the vulnerability of laboratories and blood banks.

Results: By integrating laboratory and blood bank programs with the hospital emergency plan and national emergency plan, managing essential tests ensuring the availability of safe blood resources in response to urgent demand helped reduce the incidence of mortality by reducing mortality rates.

Conclusion: Some countries provide medical facilities and providers for advanced recovery with combat and progress units. If we continue to improve the survival of the incident on the battlefield, we must work together and learn from each other. We also have to work with our civilian colleagues to avoid the benefits of experience.

Keywords: Military Laboratory, Blood Banking, Disaster, War
Management by Honey in the Treatment of Surgical Wound: a Randomized Clinical Trial  
Narges Vasei¹, Azita Shishegar², Forouzan Ghalkhani³, Maryam Massaeli⁴

* ¹- Assistant Prof., Department of General Surgery, AJA University of Medical Sciences, Tehran, Iran - nvasi@ajaums.ac.ir  
²- Assistant Prof., Department of General Surgery, AJA University of Medical Sciences, Tehran, Iran - Dr.shishegar@armyUms.ac.ir  
³- Assistant Prof., Department of General Surgery, AJA University of Medical Sciences, Tehran, Iran - fo.ghalkhani@gmail.com  
⁴- Assistant Prof., Department of Emergency Medicine, AJA University of Medical Sciences, Tehran, Iran - m.masaeli@ajaums.ac.ir

Introduction: The aim of this study was to compare the effects of honey dressing versus saline-soaked dressing on the healing of Pilonidal Sinus surgical wound.  

Methods: In a randomized controlled clinical trial, we compared the topical application of honey with a saline-soaked gauze in 24 patients with a surgical wound of Pilonidal Sinuses.  

Results: The group treated with honey (n=12) had infection eradicated and achieved complete healing compared with the control group (n=12). The findings showed that honey gave better control of infection but there was no difference between the average duration of hospitalizations with the honey treatment and control group but the response to treatment and alleviation of morbidity in the intervention group were faster.  

Conclusion: This RCT indicates the effectiveness of honey in the rapid clearing of infection from wounds, with no adverse effects to slow the healing process; there is also some evidence to suggest that honey may actively promote healing. However, further research is needed to optimize the effective use of this agent in clinical practice.  

Keywords: Topical Honey, Pilonidal Sinus, Randomized Control Trial
Investigating the Frequency of Pulmonary Barotrauma among Military Divers

Jafar Bayrami, Shahram Oliaei, Mohammad Nobakht, Mohammad Hossein Haghparvar, Mohammad Ghasempoor Abadi, Yadollah Asgarian, Ali Bahramifar

Introduction: According to world research among divers, in both professional and recreational, commercial and military, and beginners, due to the state of the physical pressure change after diving, a condition called stress or bar-trauma occurs.

Methods: Field research based on the census, use of a questionnaire and clinical examination; use of CX-Ray and graphic-spirometry study method: descriptive cross-section. The scope of research was 2012 to 2014 (cause of prolongation of dispersion and lack of concentration of diving forces). Research tool: 1 - Demographic questionnaire 2 - Clinical examination (expert physician) 3 - Simple pulmonary graft examination 4 - Examination of tests Spirometric Pulmonary Volume.

Conclusion: Recent studies on the barotrauma casualties from different countries have led to the collection of information on the mechanism, symptoms, and the incidence of barotrauma: 1.0 to 0.6% per 1,000 people and for beginners this risk is 1.0% to 9.1% of people per 1,000 people. In this study, one case of divers was diagnosed with pulmonary embolism and 16 patients had pulmonary disorders that could be due to barotrauma. In other words, 11.11% of the subjects are exposed to pulmonary arrhythmia, which is a significant number. Based on the results of correlation models, regression and X2 and one-way variance, the relation between diving depth and pulmonary barotrauma was not significant. Also, based on the results of correlation models, regression and X2 and one-way variance, there was a significant relationship between diving times per hour and the incidence of pulmonary arrhythmia. In the study, a
confirmed case of pulmonary embolism due to a rapid ascent (pulmonary barotrauma) has been proven. 1.6% had a bronchitis incidence in divers.

**Keywords:** Divers Health, Barotrauma, Compression Sickness, Pulmonary Disease, Divers Chest Disease
MiR-219 Overexpressed Human Endometrial Stem Cell-Derived Oligodendrocyte Progenitor Cells in Fibrin Gel for Alleviating Neuropathic Pain in a Spinal Cord Injury Model

Marzie Jalali Monfared¹, Jafar Ay²

¹ 1- Assistant Professor, Aja University - m.jalalimonfared@yahoo.com
² 2- Professor - Department of Tissue Engineering, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran - jafar_ay2000@yahoo.com

Neuropathic pain occurs as a result of damage or disruption of the peripheral or central nervous system, and it becomes one of the most important medical challenges about pain. Currently, there is no drug or method for the definitive treatment of neuropathic pain. Veterans with spinal cord injury suffer from neuropathic pain which is difficult to manage or treat. Stem cell transplantation can be used to reduce the neuropathic pain. Therefore, the present study evaluates the effect of miR-219 overexpressed human endometrial stem cell (hEnSC)-derived oligodendrocyte progenitor cells (OPCs) encapsulated in fibrin gel for neuropathic pain relief. A compression model was used to induce spinal cord injury (SCI) on 20 female Wistar rats. Ten days after SCI, about 1 million cells were transplanted into the injury site. Behavioral tests, including mechanical allodynia, cold allodynia, mechanical hyperalgesia, and thermal hyperalgesia were carried out every week for 10 weeks after injury. Results demonstrated that hEnSC-derived OPCs transplantation led to improving neuropathic pain. Based on the results of this study, differentiated OPCs have therapeutic potential after spinal cord injury.

Keywords: Human Endometrial Stem Cell, miR- 219, Oligodendrocyte, Neuropathic Pain, Spinal Cord Injury.
A Survey of Pain Management Strategies in the Army of the World

Ali Hajipour Talebi¹, Bagher Sadeghian², Farhad Sadeghi Kalateh Abdul³

* 1- Bachelor of Health Information Technology Student Research Committee, Army University of Medical Sciences, Tehran, Iran - alihajipour1375@gmail.com
2- Graduate student of Health Services Management Faculty of Health, Tehran, Iran - bsadegian@yahoo.com
3- Bachelor of Health Information Technology Student Research Committee, Army University of Medical Sciences, Tehran, Iran - Farhadsadeghi.medicine@gmail.com

Introduction: The wounded soldiers often experience a lot of pain that must be taken into consideration before returning to civilian life. The military has presented several guidelines and initiatives to improve pain management by providing quick access to health care and developing pain management strategies based on the Results of the war and hospital environment.

Materials and Methods: The present study was a systematic overview with a comprehensive search of Internet sites, valid publications, Scopus, SID, Google Scholar, ISC, and related articles in this area. For the search of the English entry and the keywords "Chronic pain, military medicine, pain management", the range of time from 2010 to 2017 was considered for the selection of articles, about 120 articles were found, among which about 90 articles were included in the study. And then evaluated. After removing repetitive and unrelated cases, about 68 research-related articles were selected.

Results: The Results of the studies indicate that the military effort has focused on the development of multinational-based pain management strategies for managing the pain. Which controls concerted efforts to improve patient education about pain, increase the frequency of pain assessment and prolonged use of medication, improving training for patients with chronic pain as an important goal in improving the quality of care for patients with pain. Known.

Conclusion: Assessments and studies have shown that military pain management practices are used to improve pain monitoring and training and relief. In addition, the Army is committed to ensuring proper use and prevention of abusive behaviours due to the use of drugs, because drugs are considered as an important part of chronic pain management plans. Of course, the Results of some studies have shown that the use of military strategies for pain management may improve the management of pain more effectively and improve long-term Results.

Keywords: Chronic Pain, Military Medicine, Pain Management
Autotransfusion In Military Medicine Applications

Ebrahim Hazrati, Babak Paknejad, Azita Chegini, Mohammadreza kosari, Ohammadali Sharifi, Alireza Rezaei

1- Doctor of Medicine 1- Assistant Professor of Anesthesiology Department of AJA University of Medical Sciences, Imam Reza Hospital, Tehran, Iran - Ebrahimhazrati2016@gmail.com
2- Doctor of Medicine 2- Assistant Professor of Toxicology-pharmacology department, faculty of medicine, AJA University of Medical Sciences - Drpakb@yahoo.com
3- Doctor of Medicine 3- Assistant professor of Blood Transfusion Research center, High Institute for research and Education in transfusion medicine, Tehran, Iran - Azita_chegini@yahoo.com
4- Doctor of Medicine 4- Assistant professor of Neurosurgery department, faculty of medicine, AJA University of Medical Sciences, Tehran, Iran - Drmrkosari@gmail.com
5- Master 5- Master of Engineering Project Management, Faculty of Engineering, The University of Auckland, Auckland, New Zealand - Mohammadalarif@gmail.com
6- Master 6- Master of Medical engineering, Department of Nano Technology and Advanced Materials, Material and Energy Research Center, Karaj, Iran - Alireza_rezai@yahoo.com

Blood transfusion is a vital element in the surgery management especially in the battlefield which often requires a high volume of blood products. Blood components are valuable products which supply chain management had challenged governments' health systems. Additionally, the management of supply and demand adaptation, logistic load, possible consequences of allogeneic blood transfusion, and etc., were among the important challenge in supplying and transferring blood in the battlefield. Autotransfusion of blood collected from the wound in the operative field. There are three phases involved in Autotransfusion-collection, washing, and re-infusion. The application of Autotransfusion technique reduces the need for pack red cells. The Aim of this study was to evaluate the application of Autotransfusion in critical situations, especially combat. For this purpose, some sources, PubMed, Google Scholar were used. Showed that autologous blood transfusion and cell salvage was known as a safe and practical way of reducing the need for allogeneic blood use in emergency surgeries for wounded soldiers. This technique can be used in surgeries with more than 1000 ml of bleeding and The only prohibition of use is when the blood is contaminated to enteric contents or the amniotic fluid while Obstetrics. Although it is prohibited in limitation mentioned, the beneficial points in other surgeries are eliminating the limitation of blood affordability and necessary logistics in military operations and helping to reduce the use of allogeneic blood transfusion's side effects. Educating the clinical military experts on the use of Autotransfusion was one of the most challenging issues in military medicine. Autologous blood transfusion is known as a safe and practical way in reducing the need for allogeneic blood, and also as a solution for decreasing the
limitation of blood availability in which it can lead to a severe increase in life-saving and combat power

**Keywords:** Autotransfusion, Cell Salvage, Military Medicine
Distribution of War Injuries, the Role of Protective Equipment

Mohammad Ghasemi¹, Morteza Izadi²

* 1- Associate professor Health Research Center, Lifestyle Institute, Baqiyatallah University of Medical Sciences, Tehran, Iran - mghmed@yahoo.com
2- Professor Health Research Center, Lifestyle Institute, Baqiyatallah University of Medical Sciences, Tehran, Iran - morteza_izadi@yahoo.com

Aims: War has different consequences. In human aspects, besides mortalities, it has high personal and social costs because of case morbidities. The aim of this study is the assessment of various aspects of war injury distribution in one of the province centers of war-injured data.

Methods: In this cross-sectional study records of all injured militant sent to war casualty headquarters of one of Iran provinces during 1987-1988 were assessed. Records were collected using a self-administrated checklist and injured areas were considered as head-neck, upper and lower extremities, chest, abdomen, pelvis and vertebral column. Statistical qualitative tests were used analyzing data.

Results: Among all militants, 578 cases of injury were found. Lower extremities were the most common area of injury (57.6%). Upper limbs (30%) and head-neck area (15.7%) were in second and third place. The most common military reason of injuries was mortar explosion and hit of its Shrapnel. More than half of injuries had happened during anti-attack operation.

Conclusion: Non-war etiologies have an important role in the happening of injuries and also in most injured cases head and trunk areas are affected. So using appropriate personal protective devices have the effective role in the reduction of morbidity rate.


Keywords: War, Injuries, Anatomic Distribution, Gunshot, Personal Protective Devices, Prevention
Development of Instructional Curriculum of Maternal and Newborn Care for Army Health Providers in Disaster

Leila Poursoleiman¹, Shahla Aliyari²

1- MSC AJA University - moonlight_lp_2007@yahoo.com
* 2- Assistant Professor AJA University-nursing faculty - aliyar_shah@yahoo.com

Introduction: Health care providers, as part of the crisis team, are providing maternal and infant care services in critical situations. Therefore, determining their educational needs and curriculum development is the basis for planning in this field. Purpose: The purpose of this study is to develop a curriculum for the care of maternity and newborns for healthcare providers in the army forces.

Method: In this research, the purpose and nature of the research were applied and in terms of the research method, a multi-stage quantitative research was carried out in two stages. In the first stage, a researcher-made questionnaire was used to assess the needs of health care providers. In this phase, 208 nursing and midwifery care providers in 9 hospitals of the army forces in the city of Tehran participated in the study by census method in 2017. In the second stage, after presenting the proposed curriculum, in order to determine the desirability of the program, the Delphi method was used in two rounds. In the second stage, 12 experts from nursing, curriculum, reproductive health and midwifery were selected through targeted sampling. Finally, the curriculum developed at an Expert Panel meeting was reviewed and finalized. Data were analyzed using descriptive and analytical statistics in SPSS v.16 software.

Results: Based on the needs assessment of army forces health service providers in Tehran, a curriculum for maternal and newborns care in disasters was developed based on the kern 6-step process. The desirability of the curriculum developed by the Delphi method was approved by experts in two rounds with a 90% consensus.

Conclusion: The curriculum developed in this study has practical and interdisciplinary characteristics and has been considered in its development to international knowledge and experience and its localization, so it can play a role in raising the level of knowledge of the army services health service providers to provide services to mothers and newborns in distress.

Keywords: Disasters, Pregnant Women, Newborns, Health Care, Curriculum
Investigating the Frequency of Injuries to the Ears and Sinuses among Military Divers

Mohammad Hossein Haghparvar¹, Mohammad Nobakht², Mahmood Ghasempoor Abadi³, Ali Shams Nooraei, Sedigheh Mirhashemi⁵

Introduction: One of the first parts of the body that responds to pressure changes itself is serious damage to the nose and throat sections. In this study, the frequency of ear and sinus problems among professional divers and finding out the existence or absence of a significant relationship between these diseases and the depth and hours of diving have been studied.

Methodology: This study was a cross-sectional descriptive study and statistical analysis using SPSS software. The statistical models used are (X²) and Pearson correlation. The statistical population in this study was 62 divers of professional divers operating in the Persian Gulf. Results: The maximum diving clock: 2700 hours and the minimum diving hour: 550 h. The maximum period of diving: 22 years, at least one year and an average of 7.55 years. The maximum depth of diving: 64 meters and at least 10 meters. The age: 20 years to 45 years old. One group of patients in the study group had ear perforation. The pulmonary sounds of all subjects were normal. In the study of hearing frequency, the subjects of the study group received 41 natural radiographs using an audiometric method. There were 5 ear mild hearing loss and finally a moderate hearing loss of 1 ear. Discuss: Based on the Pearson correlation and P-00/001 correlation, there is a significant correlation between the duration of diving to the year and the total duration of diving per hour with hearing loss in this statistical society. In the study of sinus disease, 59 patients participated in the study, of which 5 patients (8.5% of the population included) had sinus cramps. After using Pearson correlation method, the P value of 0.03 was found to show a significant relationship between the maximum depths of diving with sinus cramping.

Keywords: Divers Health, barotrauma, compression sickness, ear disease, Divers sinuses disease.
Analysis of Passive Defense Considerations in the Construction of Safe Hospitals with Focusing On the Physical Dimension of The Building

Arezoo Dehghani¹, Golamreza Masoumi², Hadi Uzi³, Seyyedeh Sana Hosseini⁴

¹- MS Public Relations of the Ministry of Health, MS in Medical Education, Shahid Beheshti University of Medical science, Tehran, Iran - dehghani_am64@yahoo.com
²- Dr Assistant Professor in Emergency medicine, Department of medical science, emergency medicine Research Center, Iran University of Medical Sciences, Tehran, Iran - greza.masoumi@gmail.com
³- Dr PhD student of Health Economics, Tehran University of Medical Sciences, Member of National Elite Foundation of Iran. -uzzih@yahoo.com
⁴- MS Expert of Curative Affairs, Ministry of Health and Medical Education. Member of the Young and Elite Research Club of the Islamic Azad University, Tehran, Iran -ss_hosseiny@yahoo.com

Introduction: Hospital as one of the most important urban infrastructure can reduce human losses as the most valuable capital of society in peace and crisis situations. The hospital should be psychologically and physically soothing. In this critical condition, this feature has been exacerbated, so the study of space, location, and other design issues should always be considered.

Method: This is a descriptive qualitative study of the applied type which is carried out by collecting and analyzing existing data. Data were collected from databases and articles published in PubMed, Medline, Science Direct, Ovid, and finally the data were analyzed in the Atlas.T.I software.

Findings: Findings show that probable threats to hospitals are assessed based on invoicing cost, enemy's ability, history of threat and target attractiveness. But a total of 14 feature to create safe hospital on passive defense approach recognized that a safe building with the ability to serve in crisis situations and peace, responding to the health care needs of a massive population during a crisis and having the immediate flexibility to change are main features of the safe hospital against threats. Discussion and

Conclusion: Proper response to unexpected events requires proper preparation, facilities and planning. Given that hospitals play a key role in the treatment, care and reduction of injuries, it is necessary to maintain its sustainability during accidents and disasters. Therefore, health centers should be able to maintain safety and sustainability in different sectors at their functional level with use of passive defense considerations and comply with regulations.

Keywords: Passive Defense, Safe Hospital, Crisis
Analysis of Sustainability Strategies for Health Centers against Non-Conventional Threats

Arezoo Dehghani¹, Golamreza Masoumi², Hadi Uzi³, Seyedeh Sana Hosseini⁴

1- MS Public Relations of the Ministry of Health, MS in Medical Education, Shahid Beheshti University of Medical Sciences, Tehran, Iran - dehghani_am64@yahoo.com
2- Dr Assistant Professor in Emergency medicine, Department of medical science, emergency medicine Research Center, Iran University of Medical Sciences, Tehran, Iran - greza.masoumi@gmail.com
3- Dr PhD student of Health Economics, Tehran University of Medical Sciences, Member of National Elite Foundation of Iran. - uziih@yahoo.com
* 4- MS Expert of Curative Affairs, Ministry of Health and Medical Education. Member of the Young and Elite Research Club of the Islamic Azad University, Tehran, Iran - ss_hosseiny@yahoo.com

Introduction: The health system is sensitive and strategic parts due to the nature of activities and the role played by victims in the treatment and rehabilitation of the injured and in controlling the health of the community and the centers of this section, especially hospitals, should work 24 hours a day, without interruption at the time of the incident, and provide services. So in the event of a crisis, they play an essential role in ensuring of mental well-being of the general public, especially the victims of accidents. Therefore, it is very necessary to work out the methods of reducing the damage before the crisis occurs for these centers.

Method: This is a descriptive qualitative study of the applied type which is carried out by collecting and analyzing existing data. Data were collected from databases and articles published in PubMed, Medline, Science Direct, Ovid, and finally the data were analyzed in the Atlas.T.I software.

Findings: Findings of the research show that vulnerability reduction methods of health centers can be divided into four sections: structural, organizational, human resources and equipment. Each of these four sections has preventive measures to reduce damage and dangers. In this study, a total of 22 preventive methods have been identified in all of these areas. Discussion and

Conclusion: The Results show that vulnerability reduction approaches in the health system are used to maximize organizational capacities that are designed to minimize the consequences of natural and human hazards in the community. Also, the provision of health facilities and resources to the infrastructure of the health system, including hospitals, should always be in place with a sustainable approach to prevent hazards and reduce harm, improve preparedness and timely response to incidents. Because
these centers are sensitive and strategic, they are used continuously before, during and after the crisis.

**Keywords:** health centers, Sustainability Strategies, event, non-conventional threats
Bleeding control methods in military trauma: A systematic review study

Mohsen Rahmani¹, Hesam Sharifnia², Saeid shahraki³, Hossein Mohammadebrahimi⁴

Background: on the battlefield, not only time is limited to controlling bleeding, but the severity of the injury and the possibility of multiple injuries together worsens the challenge of wound management. This systematic review conducted with the aim of investigating the methods of controlling the bleeding during military trauma.

Methods: This study, conducted in a review of PubMed, Ovid Medline, Google Scholar and Cochrane databases from 1990 to 2018. The key words "Hemorrhage, Wounds, Injuries, Prehospital, Trauma, Bleeding," were used to search and were selected based on the critical evaluation checklist. Initially, 405 articles related to the topic obtained and refined according to the purpose of the study, and finally, 34 related articles selected and examined.

Results: After examining the available studies, the criteria for a hemostatic agent include the ability to stop arterial and vascular hemorrhages within 2 minutes after use, and the ability to absorb through the bleeding site when in use. It is also easy to use by the injured person, a fighter or a doctor with the least training. By reviewing other studies, several factors such as the use of active factor VIII, drug-treated dressings and tourniquet have been mentioned. In recent studies of bleeding control, a variety of impregnated dressings has been mentioned that mineral zeolite, chitosan, and dry fibrin dry silage are the most important ones. In spite of being more effective and able to keep dry-feminine homeostasis than Chitosan, the cost of producing this substance is higher than Chitosan.

Conclusions: Considering that some measures have been taken in the control of bloodshed in the armies of other countries, they should use these experiences and studies in other countries to train their troops and provide the necessary equipment and drugs to control the bleeding.

Keywords: Hemorrhage, Wounds, Military, Trauma, Bleeding
Military Medicine Education and International Collaborations
Multidisciplinary team working in the military battlefield; the 5-year experimental survey in the Axis of Resistance wars.

Hamidreza Javadzade¹, Mohammad Javad Behzadnia²

1- Assistant professor Trauma Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran. - hamidrezajavadzade@yahoo.com
* 2- Assistant professor Trauma Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran. - behzadnia@bmsu.ac.ir

Introduction: The medical military staffs may have encountered mass casualties during a short time in the war zone. Managing the critical patients in such conditions is much more difficult than the other situations. Inadequate of the medical staffs may lead to missed managements and even increased mortality and morbidity.

Methods and Materials: In a cross-sectional descriptive study, 2000 military casualties were enrolled in our study. Most of the victims were male (99.3%) with the average age of 27±2 (21 – 54) years old. The patients were categorized into two groups; group A which managed by a well-known medical team group and group B with a random unstructured medical team.

Results: In group A, whenever they confront a mass casualty in the war zone they merge together to do triage the casualties, then manage the emergent patients as a team group to save time and in the case of necessity, the emergency medicine specialist and his group would help to the surgeon.

Conclusion: closed collaboration in various fields from the emergency medicine specialist to the surgeon and anesthesiologist is a new concept in the field of military medicine. These team working showed a significant relation in mortality and morbidity (from 1% to 0.03) during the two years cross-sectional study.

Keywords: team working, military medicine, mortality, morbidity
Model-Based Development of Implementation of Knowledge Management in AJA University of Medical Sciences

Armin Zareian¹

* ¹- Associate Prof. Aja University of Medical Sciences - arminzj@yahoo.com

Introduction: The realization of the Fourth Development Plan and Vision 20 years, provided that the requirements have been observed and strategic plans, in accordance with the mission of developing and run. Knowledge new title that refers to the present and near future. For this purpose, the increasing importance of integrated management of knowledge in organizations is felt more every day.

Aim: Implement knowledge management in the Aja University of Medical Sciences ".

Materials and Methods: This study was the use of analysis on 110 personnel with a bachelor degree in Aja University of Medical Sciences was carried out. The data collection instrument was a questionnaire. The data in SPSS and LISREL software using correlation and structural equation modelling was analyzed.

Results: The findings showed that organizational culture and organizational structure, information technology and infrastructure needed to implement knowledge management Motivation Research Results showed that organizational culture (learning, trust and cooperation) the most influence on the implementation of there was no significant effect on the power of knowledge and culture. The structure of decentralization and organizational formalization, respectively, have a significant effect and have the least impact on the implementation of knowledge management.

Conclusion: According to the studies performed and the proposed model, this study could be a starting point for implementing knowledge management in the Military Medical University. According to the research findings, knowledge management infrastructure of Medical Sciences based on the priority of the organizational culture, organizational structure, information technology, motivation and strength will be assessed at the end of the culture that If implemented, can be a model applicable to the organization done.

Keywords: Model Development, Knowledge Management, Implementation
The Needs Assessment for A General Medical Curriculum with an Emphasis on Military Medicine

Mojgan Mohammadimehr¹, Hossein Dehghanzadeh², Keivan Majidzadeh³

* 1- Associated Professor AJA University of Medical Sciences - Mojganmehr20@yahoo.com
2- Assistant Professor AJA University of Medical Sciences - hossein.dehghanzadeh@gmail.com
3- Associated Professor AJA University of Medical Sciences - kmajidzadeh@razi.tums.ac.ir

Introduction: Military doctors need the skills and knowledge they need to play their role. Nowadays in the world different countries designed and developed specific activities and curricula to train and train military physicians at general and specialized levels. The purpose of this study was to explain the educational needs assessment of general medical curriculum with the approach of military medicine.

Methods: The present study was carried out in a mix-method research. In the qualitative section, the analysis of the content of the global experiences of the US and Russia were used. In the quantitative part, the survey Methodology and the Delphi Needs Testing Technique were conducted among specialists with military medicine experience. After analyzing the findings, educational needs were explained.

Results: According to the findings of this research, it is necessary 30 theoretical-practical courses be added to general medical lessons. Also, special military medicine sections will be added to any existing syllabus.

Conclusion: According to the findings of this research, officials and curriculum planners can play an important role in training military specialist physicians by adding military medicine specialist units.

Keywords: Military Medicine, Medical Science, Curriculum, Needs Assessment
Designing the “Rescue and Transport” Course in the Bachelor Curriculum of Nursing

Hossein Babatabar Darzio\textsuperscript{1}, Iman Jafari Iraqi\textsuperscript{2}, Mohammad.r maleki\textsuperscript{3}, Ali Rahmani\textsuperscript{4}, Mohammad.m salari\textsuperscript{5}

\textsuperscript{1} 1- MSc Faculty of Nursing, Baqiyatallah University of Medical Sciences, Tehran, Iran
- babatabar1343@yahoo.com
\textsuperscript{2} 2- MSc Faculty of Nursing, Baqiyatallah University of Medical Sciences, Tehran, Iran
- iman.jafari.1366@gmail.com
\textsuperscript{3} 3- MSc Faculty of Nursing, Baqiyatallah University of Medical Sciences, Tehran, Iran
- sina_138585@yahoo.com
\textsuperscript{4} 4- Dr Faculty of Nursing, Baqiyatallah University of Medical Sciences, Tehran, Iran
- rahmani4143@gmail.com
\textsuperscript{5} 5- Dr Faculty of Nursing, Baqiyatallah University of Medical Sciences, Tehran, Iran
- mmmsalaree@gmail.com

**Aims:** In conflict and crisis, aid and rapid and accurate transfer of the injured and wounded to the safe areas or medical centers is very important and decreases the adverse effects to the minimum level. Therefore, nurses, particularly military nurses must have sufficient skills and expertise in this field. This research aimed to develop the curriculum of the aid and transport for Baccalaureate Degree Nursing students with a systematic approach.

**Methods:** This is a descriptive and survey study which was done in 2013. 48 professors and experts were selected purposeful using Delphi technique and snowball method to saturation. First, by library studying and Internet searching, content headlines of the curriculum aid and transport was extracted and adjusted. Experts' opinion about the suggested topics was collected based on the Delphi technique and scored based on content validity ratio (CVR). Then it assessed at Master meeting group and approved. Data were analyzed using SPSS 19 statistical software.

**Findings:** According to a survey, aid and transport curriculum in the Baccalaureate degree of Nursing with military approach was designed including two theory credit and a practical credit and an apprenticeship credit.

**Conclusion:** Due to the geographical and geopolitical situation of Iran, empowering nurses in the field of aid and transport of the injured people in the events, crises and war in the form of credits seems inevitable and necessary.

**Keywords:** Curriculum, Military, Nursing Students
Investigating soldiers' awareness of cardiovascular and pulmonary resuscitation of adults based on the 2015 Cardiopulmonary Rehabilitation Guidelines

Milad Ali Akbari¹, Masuod Zahmatkesh², Mohammad Keshmiri³, Hadi Rahmatiyar⁴

Introduction: Cardiopulmonary arrest is one of the most dangerous medical conditions at any time and place. Objectives: Cardiopulmonary resuscitation is a lifesaving technique and a life-saving skill to maintain blood and oxygen flow during a cardiac and respiratory arrest, which can be used to increase the survival rate if done timely and properly. Lack of knowledge and skills in the recovery team is one of the main problems in cardiopulmonary resuscitation. Accordingly, this study was conducted to assess the soldiers' awareness of the cardiovascular and pulmonary resuscitation of adults based on the 2015 instruction.

Methods: This is a descriptive cross-sectional study that was performed on 55 soldiers with an average age of 19.8 ± 1.8 in a random sampling method. The data were collected by a researcher-made questionnaire assessing the level of awareness of cardiopulmonary resuscitation in a complementary way. Data analysis was performed using SPSS version 21 software.

Results: The average score of soldiers was 27.7. Based on this test, soldiers' awareness was very low. There is a positive and significant relationship between the level of education and age with the test scores.

Conclusion: Based on the Results of the study and that cardiopulmonary resuscitation is one of the fastest and most immediate public and interventional interventions to prevent or delay the death of individuals, the training of cardiopulmonary resuscitation for soldiers during the period Different educational materials are suggested.

Keywords: Soldier, Cardiopulmonary Resuscitation, Instructions.
A Review of the Risk Reduction of Earthquake

Mehnoosh Farahabadi¹, Neda Javadi², Sara Hojati³, Mohadese Rezaie⁴, Nafise Rabani⁵

* 1- Bs Midwifery - mehnoosh.farahabadi@yahoo.com
2- BS Midwifery - Javadi@yahoo.com
3- BS Midwifery - Hojati@yahoo.com
4- BS Midwifery - Rezaie@yahoo.com
5- Ms statutory midwifery - Rabani@yahoo.com

Introduction: Iran is located on the Alpine-Himalayan orogenic belt and therefore, the earthquake is one of the natural disasters in Iran, leading to human casualties and irreparable economic losses. This study has been designed with the purpose of the investigation of the Risk Reduction of Earthquake.

Methodology: this review was conducted using Google Scholar, SID, PubMed, and Magiran and searching keywords including Earthquake, Retrofitting, Earthquake Risk Factors, Safety and 23 papers were extracted. There was no limitation regarding the years when the study was carried out and after analyzing it, 11 articles were used.

Findings: The proper furniture arrangement and appropriate safety precautions when earthquake happen are one of the most important risk reduction factors after retrofitting of a building which can prevent earthquake damages and fatalities. This kind of behaviour is based on experiences, habits and awareness that has been stored in our consciousness or unconscious mind, and is manifested when an unexpected event occurs.

Conclusion: Earthquake unpreparedness is one of the main causes of the casualties, losses and extensive damages of the past earthquakes in Iran

Keywords: Earthquake, Retrofitting, Earthquake Risk Factors, Safety
Aerospace and Subaquatic Medicine
Scuba Diving Attenuated Cognitive Function Ability In The Professional scuba divers

Gholam Hossein Meftahi¹, Hedayat Sahraei²

Introduction: Physical activity increases the performance of the nervous system by stimulating the body's metabolism and improving the efficiency of the ATP production system. Diving with an independent breathing apparatus (SCUBA) has become a global sport. In the present study, the effect of twenty minutes scuba diving in high depth (10m) on cognitive function and stress system activity was investigated.

Method: Twelve professional scuba divers with a mean age of 23±1 year, the weight of 80±2.5 kg and height of 1.79±3.5 cm resident of the city of Mashhad participated in the test. Their cognitive functions were measured 60 min before and 20 min after diving and the data were evaluated using the PASAT (paced auditory serial addition test) software. In the present study, parameters such as general mental health, sustain attention, average response speed, and mental fatigue was measured. Moreover, in order to determine the activity of the stress system, their salivary cortisol was collected before and after diving.

Results: Results revealed that the general mental health of these scuba divers was normal and it did not undergo a remarkable change after diving. Their average response speed and sustain attention had a significant decrease after scuba diving. Mental fatigue after diving increased than the before diving. Also, salivary cortisol level significantly increased after diving.

Conclusion: In conclusion, since the cognitive function is changed with variable factors, in this study the effects of diving evaluated. It seems that scuba dive may decrease brain cognitive function for a short time after diving. Based on our data, it can be concluded that after the diving response rate is low so divers should prevent do something with high attention after diving.

Keywords: Cognitive Function, Mental Fatigue, Processing Speed, Salivary Cortisol, Sustain Attention, PASAT
Taravana Syndrome: A Threat in Military Breath-Hold Diving

Hamze Shahali¹, Azade AmirAbadi Frahani², Abolfazl Khademi³

* 1- Assistant Professor MPH & Specialist on Aerospace & Diving Medicine, CME Manager of AJA University of Medical Sciences, Iran, Tehran - hamze.shahali@ajaums.ac.ir
2- Medical Researcher Specialist of Clinical & Anatomical Pathology, Iran Forensic Medical organization, Iran, Tehran - amirabadi.azadeh@gmail.com
3- Assistant Professor Specialist on Aerospace & Diving Medicine, AJA University of Medical Sciences, Iran, Tehran - a.khademi@ajaums.ac.ir

Introduction: Dysbaric accidents (DA) are usually referred to continuous air-supplied dives. Nonetheless, diving accidents are known to occur also among breath-hold (BH) divers. BH diving accidents include the rare Taravana syndrome (TS) which firstly described by Cross in 1965. He reported professional BH pearl divers in the Tuamoto Archipelago, in the South Pacific. Paulev also found TS in Danish military personnel previously exposed to pressure during submarine escape training. In the same year, using the U.S Navy no-decompression limits Lanphier calculated the likelihood of developing decompression sickness after repetitive breath-hold dives using specific parameters such as average diving time, depth and surface intervals.

Methods: This article is a review Article, According to all articles, textbooks, guidelines and documentation about Challenges in Military Breath-Hold Diving.

Results: Often called "Taravana" it presents as a complex clinical picture characterized by different combinations of complete or partial neurological disorders as nausea, euphoria, hemiparesis, visual problems, hearing impairment, dysarthria, crossed sensory numbness and minor symptoms such as nausea, dizziness, vertigo, headache and unconsciousness, and even sudden death, after repetitive BH dives with short surface intervals. In some cases the symptoms were sudden, occurring as the divers left the water, whereas in other cases they appeared 1-2 h later, depending on the dive profile. Its predisposing factors are unclear. Although some cases have been reported in the literature, the pathophysiology and the predisposing factors of this syndrome are still unclear. Even if the genesis of these particular TS cases is still doubtful, the inert gas accumulation cannot be excluded. Hyperbaric Oxygen Therapy is the choice treatment for TS.

Conclusion: TS is the critical threat in military BH divers with repetitive shallow water diving during Marine environment conflicts. So, having
enough information and skills for prevention, approach and treatment of TS are mandatory in military divers, military and civil medical crew.

**Keywords:** Military, Breath-Hold Diving, Taravana Syndrome
Hyperbaric Oxygen Therapy a reliable friend for veterans: A Systematic Review

Abbas Nourmohammadi¹, Mahdieh Doaee², Amir Nezami Asl³, Mahmood Momenzadeh⁴, Hamzeh Shahali⁵, Abolfazl Khademi⁶

Purpose: Hyperbaric oxygen therapy (HBOT) involves breathing pure oxygen in a pressurized chamber or tube. HBOT is a well-established treatment for several diseases such as serious infections, chronic diabetic foot ulcer, radiation injury and hidradenitis suppurativa. There are various troublesome diseases that decrease the quality of life (QOL) in patients. HBOT has excellent effects in improving QOL in patients with the acute and chronic disease. The aim of our study is evaluating the researches, focusing on improving the QOL after HBOT treatments.

Methods: Systematic search was conducted for finding English papers (clinical trials) that Published before April 2017. We searched PubMed, Institute of Scientific Information (ISI), SCOPUS, Web of Science, Ovid, Science direct, ProQuest, Wiley, Cochran, Ebsco host, Google Scholar. The JAMA users guide assessment scales for clinical trials was used to evaluate the quality of included articles. Inclusion Criteria and Exclusion Criteria extracted according to the scientific criteria. The sample size was 806 patients.

Results: Finally, 15 published articles extracted. Mean age in HBOT group was 41.88 with male/female 1.52. Mean age in the control group was 38.29 with male/female 2.14. The most frequent clinical trials were for treatment of diabetic foot ulcer (20%), post-concussion syndrome (13.3%), and pelvic radiotherapy (13.3%), chronic arm lymphedema after radiotherapy (13.3%). The most QOL questionnaires used were SF-36 (21.4%), EORTC (European Organization for Research and Treatment of Cancer) QLQ-C30, Head & Neck Cancer Module (H&N35) and Performance Status Scale (PSS).
Conclusions: There was dramatically effect of HBOT in improvement QOL in symptoms and patients' outcomes compared with control groups. We found improved QOL in patients with a diabetic foot ulcer, post-concussion syndrome, pelvic radiotherapy, post-stroke, hidradenitis suppurativa, tonsillar fossa tumour radiotherapy, jaw osteonecrosis and Fibromyalgia syndrome. We suggest that HBOT must accompany as an adjuvant to conventional treatment of these patients.

Keywords: Hyperbaric Oxygen Therapy, Quality of life, Clinical trial
Designing a Native Search and Rescue in the Navy

Syyedali Mosavijazayeri¹, Manaf Abdi², Ali Ali Akbar Esfahani³

Introduction: Maritime Search and Rescue Center, is the first center in marine accidents, responsible for actions such as search and rescue, medical assistance, prevention of marine pollution and maritime safety controls. One of the key challenges in rescue is the coordination of relief and rescue operations. According to the golden time that is available to save injured marine casualties, one of the most important factors is the speed and quality of relief and rescue. The aim of this study was to design a local model for search and rescue of marine casualty that could save the lives of victims, particularly the military personnel.

Methods: This research is a descriptive and applied study. The information was collected via a structured interview with experts and commanders of the military medicine and data were analyzed using qualitative content analysis method.

Results: The perfect operational coordination of the manpower, equipment, structure, and processes in the rescue and relief issue is necessary for reducing casualties and providing health care services and effective relief appropriate with conditions. In order to achieve this goal, an indigenous model with a combination of Search and Rescue (SAR) and ambulance were designed which provides the ability to simultaneously search and rescue and give service in the shortest possible time.

Conclusion: Structural models for relief in marine incidents do not have high efficiency due to the separation of search and rescue. Therefore, in the designed model, it has been attempted to integrate and coordinate equipment, processes, and human resources to increase the speed, accuracy, and effectiveness of marine disaster management compared to foreign models. These factors which are the most effective components of the military units’ missions, was confirmed in practical examples.

Keywords: Marine Casualties, Relief Operations, Search and Rescue
The Erythropoietin as a guardian for Astronaut's Anemia

Abbas Nourmohammadi¹, Mahdieh Doaee², Akbar Haji Ghasemalian³, Mahmood Momenzadeh⁴, Hamzeh Shahali⁵, Amir Nezami Asl⁶, Abolfazl Khademi⁷

* 1- Assistant Professor Research Center of Aerospace Medicine, School of Aerospace & Diving Medicine, AJA University of Medical Sciences - dr.nourmohamadi@yahoo.com
2- Community medicine specialist Community medicine specialist - mahdyiedoayie@yahoo.com
3- Aerospace & Diving Medicine specialist Research Center of Aerospace Medicine, School of Aerospace & Diving Medicine, AJA University of Medical Sciences - drrghasemalian@gmail.com
4- Assistant Professor Research Center of Aerospace Medicine, School of Aerospace & Diving Medicine, AJA University of Medical Sciences - mg_mahmood@yahoo.com
5- Assistant Professor Research Center of Aerospace Medicine, School of Aerospace & Diving Medicine, AJA University of Medical Sciences - Hamzeh.shahali@gmail.com
6- Assistant Professor Research Center of Aerospace Medicine, School of Aerospace & Diving Medicine, AJA University of Medical Sciences - moan_abb@yahoo.com
7- Assistant Professor Research Center of Aerospace Medicine, School of Aerospace & Diving Medicine, AJA University of Medical Sciences - masoud_kh777@yahoo.com

Purpose: Microgravity causes major changes in various systems of the body in space, such as a shift in cerebrospinal fluid, decreased red blood cells count, and electrolyte loss. These complications are very important in space and we should find new approaches to prevent the side effects of microgravity in astronauts.

Materials and Methods: This experimental study was conducted on 21 adult male rats in three groups: control, Hind-limb unloaded, Hind-limb unloaded plus Erythropoietin. SPSS software was used for data analysis. RBC indices were assessed in the first, third and fourteenth day in different groups.

Results: The highest mean of haemoglobin was 17.98 ± .35 in the Hind-limb unloaded plus Erythropoietin group (on the 3rd day) and the lowest amount was 13.52 ± 1.22 in the Hind-limb unloaded group (on the 14th day). The P value to compare RBC and reticulocyte count in Hindlimb unloaded group with those in Hind-limb unloaded plus Erythropoietin group was .017 (on the3rd day), to compare hemoglobin in Hind-limb unloaded group with that in Hind-limb unloaded plus Erythropoietin group was 0.004 (on the 3rd day), and to compare reticulocyte values in Hind-limb unloaded group with those of Hind-limb unloaded plus Erythropoietin group was 0.036 (on the 14th day).

Conclusion: The lowest amount of RBC indices was in the Hind-limb unloaded group (on the 14th day). RBC indices were significantly higher in Hind-limb unloaded plus Erythropoietin group than those on the 1st day. Erythropoietin injection induced significant improvement in RBC.
indices in rats under microgravity condition. Erythropoietin is very useful to prevent space anemia and its highest effect occurs on the 3rd day after injection. This is as an innovative method to prevent space anemia.

**Keywords:** microgravity, anemia, erythropoietin.
Evaluation of pilot student’s from psychiatric-personality aspect by Cloninger Test

Hosein Ghazizadeh¹, Farhad Avakh Kismi², Abolfazl Khademi³, Amir Nezami Asl Sisi⁴, Saeid Ehteshami⁵, Gholamreza Mahmoudi⁶

Background: a Psychiatric-Personality aspect of a person has a great role in his/her personal or social manner. Some important and specific jobs such as military personnel especially pilots need to more adaptation and this adaptation has a direct relation to Psychiatric-Personality aspects.

Aim: In this research, we evaluated a psychiatric-personality aspect of pilot students by Cloninger Test.

Materials and Methods: Our community was pilot students of Islamic Republic of Iran air force who were selected by convenient (available) sampling. Data was collected by Temperament and Character Inventory (TCI) Cloninger questionnaire and demographic data were collected. For analysis, we used SPSS 21 software by using descriptive statistical methods, T-test and one-way ANOVA analysis of variance.

Results: This study was cross-sectional and the number of pilot students was 150. As Results, evaluated character scales in pilot student have differences in compared with other similar community (Iranian population). Also, comparison of Temperament scales with other similar community had a meaningful difference.

Conclusion: As a Psychiatric-Personality aspect of a pilot is very important, we suggest to use of this research Results in pilot students selection for better adaptation and competence.

Keywords: Cloninger, pilot student, psychiatric-personality aspect, character, temperament
Health Protection and Rehabilitation for the Military Community
The Effect of Eight Weeks High-Intensity Interval Training (HIT) and Morning Exercises on Lipid Profile of Police Force Personnel

Sajad Namvar¹, Ali Yaghoubi², Azra Abdolabadi³, Amin Roshandel⁴

* ¹- Major PhD Student of Sociology - Islamic Azad University of Ghuchan - Head of Applied Police Research Center of Northern Khorasan Province - sajad.namvar@yahoo.com
2- Dr. PhD in Physical Education, Islamic Azad University, Bojnourd - sajad.namvar@yahoo.com
3- Dr. dentist. Research Fellow of Northern Khorasan University of Medical Sciences - sajad.namvar@yahoo.com
4- Mr. Master of Physical Education - sajad.namvar@yahoo.com

Aims: The aim of this study was comparing the effect of eight weeks high-intensity interval training (HIT) and Morning Exercises on the lipid profile of Police force personnel.

Methods: For this purpose, 50 employees of Bojnourd Police force, randomly divided into two groups: 1. HIT training and 2. Morning exercises. HIT Training subjects do HIT training 3 times per week for 8 weeks with 90% of maximum heart rate. Lipids profile levels, 12 hours before the first session and 48 hours after the last session, were measured. For data analysis from paired t-test and Wilcoxon for within-group change and independent t-test and Mann–Whitney U test for between-group change in the significant level of P<0.05, were used.

Results: Results show that 8 weeks of HIT training significantly reduces LDL, TG and TC level (P<0.05) but there was no significant effect on HDL level. Eight weeks of Morning Exercises had no significant effect on the research's index. Between 8 weeks of HIT training and Morning Exercises in LDL, TC and TG levels in Polis force personnel, a significant difference was observed.

Conclusion: this Results show that HIT training has a positive effect on lipids profile in Polis force personnel; so it can be suggested to reduce the classical cardiovascular risk factor in Polis force personnel, HIT training be added to Morning Exercises.

Keywords: High-Intensity Interval Training (HIT), Morning Exercises, Lipid Profile, Polis Force Personnel
Acute Meningitis in Military Forces: Epidemiology, Iran, 2002-2012.

Seyyed Javad Seyyed Javad Hosseini Shokuh1, Amir Khoshvaghti2, Ahmad Mousavi3, Seyyed Mohammad Pourshahid4

1- Assistant Professor Infectious Diseases Research Center, Aerospace and Subaquatic Medicine Faculty, AJA University of Medical Sciences, Tehran, IRAN. - sjavadhsh@yahoo.com
* 2- Assistant Professor Infectious Diseases Research Center, Aerospace and Subaquatic Medicine Faculty, AJA University of Medical Sciences, Tehran, Iran. - anatomygray2009@gmail.com
3- Assistant Professor Infectious Diseases Research Center, Aerospace and Subaquatic Medicine Faculty, AJA University of Medical Sciences, Tehran, IRAN. - amirtanha2009@gmail.com
4- Researcher Infectious Diseases Research Center, Aerospace and Subaquatic Medicine Faculty, AJA University of Medical Sciences, Tehran, IRAN. - khoshvaght_a_Kh@yahoo.com

Introduction: In modern medicine, acute meningitis is not common but is so serious and problematic. Highest mortality (20%) belongs to bacterial meningitis despite different antibiotics and vaccines. It has many complications and sequels; may be lethal. Purpose of this research was to disclose epidemiology of acute meningitis and its characteristics among military forces personnel and employees in Iran from 2002 to 2012.

Materials & Methods: The study was descriptive and retrospective. Data of military personnel were gathered and analyzed by SPSS (version 16).

Results: One hundred ninety-four patients with meningitis were found between years 2002 to 2012. The mean age of the cases was 18.5±1.44; age range of 16 to 42. The sex of population male preponderance was 99.48% against female (0.52%). Bacterial meningitis was more common (63.40%); 36.60% were diagnosed as viral or aseptic. Positive CSF culture was found in 50.40% of bacterial cases. Neisseria meningitidis and Streptococcus pneumonia were the most prevalent pathogens (48.39% and 38.71%, respectively). 44.33% of cases had a history of meningitis vaccination. Total mortality rate was 10.31%. Seasonal incidence of meningitis was higher in the winter (30%) and spring (28%). 45.87% of the patients were diagnosed in the first two months of the military service. Among types of military forces, ground forces had the highest share of meningitis incidence (65%). A significant decrease in the yearly incidence of total and bacterial meningitis (P<0.01) and also viral meningitis (P<0.05) was seen in the 2007 to 2012 period.

Conclusion: The reduction in the yearly incidence of total and bacterial meningitis can be assigned to pre-enlistment meningitis vaccination program which began in 2007. The decrease of both bacterial and viral
causes can be attributed to improvements in nutritional, personal and environmental hygiene.

**Keywords:** Meningitis, Army, Incidence, Mortality.
The relationship between Body Mass Index and Musculoskeletal Disorders and General Health in Military Personnel

Pouria Rahimi¹, Mozaffar Ahmadi Sarbarzeh²

Aim: Musculoskeletal disorders, general health of individuals and body mass index are among the most important indicators of health evaluation of individuals in different organizations. The aim of this study was to investigate the relationship between BMI and musculoskeletal disorders and general health in military personnel.

Materials and Methods: This cross-sectional descriptive-analytic study was carried out on 75 military personnel in June 2016, which were selected by convenient sampling method. Data were collected using a standard Cornell questionnaire, weight and height were used to measure BMI and Goldberg General Health Questionnaire. For data analysis, SPSS 20 and descriptive statistics, independent T-test and one-way ANOVA were used.

Results: The most musculoskeletal disorders were in the waist (52%), back (44%) and shoulder (40%), respectively. The general health status of the subjects was moderate (4.8) 39.3. There was a significant relationship between BMI and musculoskeletal disorders (p=0.01) and general health (p=0.01), which increased with increasing body mass musculoskeletal disorders, and general health.

Conclusion: Body mass index affects musculoskeletal disorders and general health.

Keywords: Body Mass Index , Musculoskeletal Disorder , General Health , Military Personnel
Military Health Priorities with Emphasis on Common Illnesses in Iranian Militaries: A Systematic Review

Nasrin Jafari golestan¹, somayeh Azarmi²

1- Instructor/Faculty member/PhD Nursing Candidate in social welfare and rehabilitation university Iran, Tehran, Instructor, Faculty member, PhD Candidate of Nursing, the University of Social Welfare and Rehabilitation Sciences, AJA University of Medical Sciences, Faculty of Nursing, Nursing Management Department. - Jafari_golestan_nurse@yahoo.com * 2- Instructor/PhD student of Health in Emergencies and Disasters Iran, Tehran, instructor, PhD Student of Health in Emergencies and Disasters, AJA University of Medical Sciences, Faculty of Nursing, Military Nursing Department. - azarmi1363@yahoo.com

Introduction & Objective: The health of military forces as a specific population group should always be considered. Mission and activity in special and unconventional conditions have caused numerous damage to the military. Therefore, in order to maintain and improve the efficiency of the military, it is important to consider and prioritize health. This study is an overview of the military health priorities of the Iranian military with a systematic review approach. Materials and Methods: This study is a systematic review by searching the SID, Iran Medex and Google scholar databases in the period 2000-2018 with the Keywords "common diseases in military forces", "burden of disease in AJA staff " Common diseases in armed forces, " common diseases in the Air Force Staff "," common Navy diseases "," common diseases in soldiers ".This study was conducted only in Persian articles.

Findings: Several studies have been carried out on common diseases and health and disorders in Iranian military personnel. By Critical Appraisal, 80 articles in this subject were reviewed and analyzed, that including reports of the various types of disorders such as contagious diseases, nutritional problems, psychiatry, cardiovascular, musculoskeletal, cancer, health issues and caring in barracks and soldiers, metabolic and traumatic disorders in Iranian military. The Results of these studies can be used in policy-making in educational, research, clinical and management areas.

Conclusion: Further studies on military health in the future, determining the burden of diseases, systematic and targeted Health monitoring of military forces, designing and implementing Operational guidelines in this regard, and applying the Results of these studies to promote the health of the military and empowerment of the country's defensive force is essential.

Keywords: Health Priority, Militaries, Iran
Effect of Instructions for Internal and External Focus of Attention on Balance in Chemical Warfare Veterans

Hossein Shirvani1, Hamideh Mahmoodzadeh Hosseini2

Abstract Background and Aim: Focus of attention is known to play an important role in motor control, yet little is known about how attention is directed within the context of chemical warfare veterans with a motor disorder. The aim of this study was the effect of instructions for internal vs. far and near the external focus of attention on static and dynamic balance in chemical veterans.

Methods: This research is quasi-experimental. The subjects included 21 chemical warfare veterans with motor disorder referred to Baqiyatallah Hospital who were randomly divided into 3 groups. The task was the stork stand test (for static balance) and balance board test (for dynamic balance) which was executed under four condition (3 trials in per conditions; internal focus, near external focus, far external focus and control). Participants in the control condition did not receive any instruction, in internal focus condition, participants were instructed to focus on body movements, in near external focus condition, participants were instructed to focus on ground flooring and in far external focus condition, and participants were instructed to focus on a cone at a distance of five meters.

Results: The Results of repeated measures ANOVA showed that the participants in two near external focus and far external focus significantly (p=0.001) had better static and dynamic balance compared with internal focus and control conditions.

Conclusion: The result of the present study support "constrained action hypothesis" and show that focusing on the movement effect on the environment improve motor performance of chemical veterans, such as static and dynamic balance. Keywords: Focus of Attention, Far External Focus, Near External Focus, Balance, Chemical Warfare Veterans.

Keywords: Focus of Attention, Far External Focus, Near External Focus, Balance, Chemical Warfare Veterans.
Investigating the Potential of Tehran's Military Hospitals in The Reduction of Bio-Aerosols Associated with Nosocomial Infection

Vida Pesarakloo¹, Ata Rafiee², Abbas shahedi³

1- MA Aja University of Medical Science - pesarakloovida@gmail.com
2- MA Aja University of Medical Science - sh09124598863@gmail.com
*3- MD Aja University of Medical Science - sh09124598863@gmail.com

Background and Objectives: The aim of this study was to determine the type and concentrations of Bio-aerosols associated with nosocomial infections in different parts of the AJA hospitals in Tehran and offering the solutions to reduce transmission through the air route in 2016.

Methods: This study was cross-sectional and was carried out in selected AJA hospitals in Tehran in 2015. Sampling sites contained the Operation Theater, Intensive Care Unit and infectious wards of the studied hospitals. To determine the Bio-aerosols, passive sampling method was used. At the time of sampling, variables such as temperature, humidity and the number of active personnel were recorded. Tryptic Soy Agar (TSA) and Sabouraud Dextrose Agar (SDA) growth media were used for the identification of bacterial and fungal species, respectively. Sampling was carried out within 60 days and once every six days monthly. Totally, 120 bacterial and fungal samples were collected and analyzed, and the results were reported in qualitative and quantitative (CFUm⁻³).

Statistical analysis was conducted with SPSS 21 software.

Findings/Results: The average concentration of bacteria in the air of the hospitals A and B wards were 84 and 212 CFUm⁻³, respectively. Also, the Average concentrations of fungal species that were detected in the indoor air of the hospitals A and B wards was 85 and 80 CFUm⁻³, respectively. The dominant fungal species of hospital A and B were Aspergillus Niger with the frequency of (28%), and Cladosporium with the frequency of (25%), respectively. Dominant bacterial species in both hospitals was Staphylococcus epidermidis. A significant correlation existed between population density and concentration of Bio-aerosols (pvalue<0/1).

Conclusion: bacterial and fungal Bio-aerosol concentrations in studied hospitals were higher than the existing standards which indicate the low efficiency of the ventilation system in the studied hospitals.

Keywords: Bacterial Spores, Fungi, Indoor Air Pollution, Nosocomial Infection, Hospital
Study Of Body Mass Index Of Military Personnel Which Patient To Varicocele, Its Relationship To Varicocele Prevalence And Results Of Semen Analysis

Mohsen koolivand¹

¹- Master of sciences Student Research Committee Hormozgan University of Medical Sciences, Bandar Abbas, Iran. - mkoolivand14@gmail.com

Varicocele is the cause of about 50 percent of men’s infertility. There are various factors causing this infertility among which Body mass index (BMI) has recently been a focus of discussion. BMI might be effective on men’s fertility through varicocele. We have examined the role of BMI, its relationship to varicocele and Results of semen analysis. 150 varicocele patients and 150 healthy persons were assessed. Varicocele grades were categorized into 3 class and their association with BMI and BMI relationship to semen analysis was investigated. The Results of this study revealed that there is a significant relationship between the two variables namely BMI and height with all three varicocele groups. Height variable also had a significant difference (P=0.0395) between two groups of normal and varicocele subjects. Also examined the relationship between all different BMI and Results of semen analysis and there was a significant difference of pH and sperm count in the four groups. The amount of sperm count in men with a BMI range of 18.5 was lower compared to others with different BMIs, and this situation was of significance (p=0.035).

Results of the present study have shown that BMI is significantly effective on varicocele and might play an important role in infertility.

Keywords: Infertility, Varicocele, Men, BMI
Health-Related Quality Of Life Among Military Personnel: What Socio-Demographic Factors Are Important?

Mohsen Saffari¹, Hojat Rashidi-jahan², Hormoz Sanaeinasab³

* 1- Associate Professor Department of Health Education and Promotion, Faculty of Health, Baqiyatallah University of Medical Sciences - saffari.ches@gmail.com
2- Assistant Professor Department of Health Education and Promotion, Faculty of Health, Baqiyatallah University of Medical Sciences - hojatr73@gmail.com
3- Associate Professor Department of Health Education and Promotion, Faculty of Health, Baqiyatallah University of Medical Sciences - sanain20@yahoo.co.in

Background: Health-related quality of life (HRQOL) is an important indicator of health status. Knowledge about factors related to HRQOL among military personnel may assist in designing programs to maximize their fitness and readiness for action when called upon. The aim of the present study was assessing the HRQOL and related socio-demographic variables among military personnel in Iran.

Methods: Using a cross-sectional design, 502 male military personnel were recruited across the country. The SF-36 health survey was used to assess health status and demographic characteristics were recorded. Student t-test and multiple regression analysis were used to examine the associations between socio-demographic variables and HRQOL. Subscale scores on the SF-36 were also compared to those in the general population.

Results: The mean age of participants was 33.0 (SD, 6.8) with an average working experience of 13.5 (SD, 6.2) years. Physical functioning was higher than other components of HRQOL. The mean scores for physical and mental subscale scores were 46.1 (8.6) and 46.6 (9.7), respectively. Significant differences were found on subscale scores of HRQOL between participants and the general population (p<0.01). Variables such as age, marital status, disease history, and health status were associated with several components of HRQOL.

Conclusions: These findings should assist in the development of programs to enhance HRQOL among military personnel, and underscore the need for further research to better understand the components of health status in soldiers and other military personnel.

Keywords: Military, Health-Related Quality Of Life, Health Status, Socio-Demographic Factors
Neurophysiological Relationship of Neuromuscular Fatigue with Mental Disorders in PTSD patients

Mostafa Sarabzadeh¹, Manijeh Soleimanifar², Masoumeh Helalizadeh³

Introduction: Nowadays mental disorders are not the only complications of PTSD, but also physical pains and early fatigue have been reported in these patients which seems to affect the quality of their daily activities.

Aim: The aim of this study was to evaluate the relationship between psychological and physical parameters in these patients.

Methods: 18 men military elderly with Post-traumatic stress disorder and healthy, age range of 45-60 yrs were voluntarily selected. Subjects were divided into two groups of healthy and PTSD (disease intensity were determined using by PTSD checklist of PCL-M type). Recording of Electromyography activity in the certain lower muscles was conducted, one time before local fatigue and another time afterwards for both groups. Data were analyzed using by two-way analysis of variance at the significance level of 0.05.

Results: The Results showed a significant difference between two groups in the muscle fatigue variable of electrical activity and neural conduction.

Conclusions: Based on present findings, psychiatric disorders of PTSD patient can be effective in early fatigue and electromyography neuromuscular disorders, so that makes difficulties on daily physical activities in these patients.

Keywords: Neurophysiology, Electromyography, Post-Traumatic Stress Disorder, Muscular Fatigue
Protective Effect of PPAR-Gamma Agonist
Pioglitazone on Oxidative Stress after Experimental
Spinal Contusion Injury
Zahra Jahanbakhsh¹, Hassan Ghoshooni², Mohammad Taghi Mohammadi³

* 1- PhD of medical physiology, Baghiatallah Medical Science University- z.jahan14@gmail.com
2- Assistant professor of Baghiatallah Medical Science University - ghoshooni287@gmail.com
3- Associate professor of Baghiatallah Medical Science University
- mohammadi.mohammadt@yahoo.com

Background and Objective: Spinal cord injury is a major medical problem that causes the disturbances in sensory-motor function. Oxidative damage and reduction of the antioxidant capacity have crucial roles in the development of damage after spinal cord injury. Since pioglitazone (PPAR-gamma agonist) has the powerful antioxidant properties, the present study aimed to evaluate the neuroprotective actions of pioglitazone on oxidative stress to improve motor function and histopathological changes after spinal cord injury.

Methods: In the present study (interventional-experimental study) rats divided into three groups: sham, control injured and pioglitazone-treated groups. Spinal cord injury was performed according to the Ping-Weight Drop (contusion) model in rat. The animals received pioglitazone (3 mg/kg) intraperitoneally at times of 15 min after injury and then every 12 hours for seven days. At 7 day, malondialdehyde and glutathione levels, the activity of catalase and superoxide dismutase (SOD) enzymes were assessed using biochemical techniques. Locomotion (Basso Beattie Bresnahan; BBB) and Histopathological changes were examined after spinal cord injury.

Findings: Induction of spinal cord injury in control injured animals significantly increased the malondialdehyde levels (56%, P=0.004) and decreased the content of glutathione (39±4 nMol/mL), the activity of catalase (48%, P=0.001) and SOD (65%, P=0.008) enzymes compared to sham group. Pioglitazone in the treated injured group significantly decreased the malondialdehyde levels (38%, P=0.038) but not glutathione levels (42±1 nMol/mL) and increased the activity of catalase (34%) enzyme (P=0.014) compared to control injured group. Also, pioglitazone noticeably improved the histopathological changes of the injured spinal cord but not motor function.

Conclusion: The findings of the present study indicate that pioglitazone through potentiation of the antioxidant defense capacity and the decrease of oxidative damage causes the reduction in the histopathological damage in the rat contusion spinal cord model. However, it is suggested that
pioglitazone must be applied at higher doses for improving motor function during SCI.

**Keywords:** Spinal Cord Injury, Pioglitazone, Oxidative Damage, Antioxidant Capacity, Histopathological Changes, Motor Function.
The Effect of Eight Weeks of Training on Pain, Balance and Sense of Lumbospasm of Laborers with Low Back Pain in Law Enforcement Force of the IRI (naja)

Mohammad Hosein Yar Ahmadi

Objective: Chronic low back pain is the most common type of low back pain and the achievement of a therapeutic and rehabilitation program for the rapid improvement of patients with chronic low back pain has always been considered. The purpose of this study was to investigate the effect of Pilate's exercises on pain, balance and lumbar spine sensation in patients with chronic low back pain.

Materials and Methods: This is a semi-experimental study with a pretest-posttest design with a control group. For this purpose, 30 military men with chronic low back pain (mean age: 44.12 ± 4.25 years, height: 155.25 ± 13.12 cm and weight: 62.23 ± 7.23 kg) the case group was divided into two equal groups of 15 experimental and control groups. The experimental group performed weekly exercises for eight hours each week for three weeks and each session for one hour, which was supplemented by the principle of overload and increased exercise intensity. In order to evaluate pain control, balance and sense of depression, visual analogue scale, star balance test and goniometer were used respectively. In this research, the significance level was considered as α = 0.05.

Results: Significant improvement in pain control, balance, and sense of depression were observed in Pilates exercises (P≤0.05), while these changes were not significant in the control group.

Conclusion: The Results of this study showed that eight weeks of Pilate's exercises have a significant effect on the control of pain, balance and lumbar spine sensory in patients with chronic low back pain. Therefore, it is recommended that therapists use this practice as a supplement to treat chronic low back pain.

Keywords: Pilates, Pain, Balance, Deepness, Lower Back Pain
Effect of Supplementary Feeding On Children Weight Curve According to Age and Height In Military Families

*Sheila Sirousbakht¹, Bijan Rezakhaniha²*

*¹- Assistant professor AIA University of medical sciences * - soheilasirousbakht@gmail.com
*²- |Associated professor AIA University of medical sciences - reza.bijan@yahoo.com

**Background:** The greatest risk of undernutrition occurs in the first 1000 days, and this early damage to growth and development can have adverse consequences in later life on health, intellectual ability, school achievement, work productivity, and earnings. Nutritional status is often assessed in terms of anthropometry. Regarding the importance of the issue, in this study, the growth pattern was determined among children ageing 6 months until 24 months in Golestan hospital and Shahid Fallahi clinic and the associations with supplementary feeding were assessed.

**Methods and Materials:** An observational analytic cross-sectional study with 120 children ageing 6 months until 24 months were enrolled in this study. The weight according to age and height patterns were determined and the association with proper national supplementary feeding program evaluated.

**Results:** It was seen that in 95% of cases (114 children) had suitable supplementary feeding that all of them were suitable weight. Only 5% of cases (6 children) with inappropriate supplementary feeding were underweight in which 50% of them (3 children) were wasting.

**Conclusion:** Totally, it might be concluded that well complementary feeding would direct effect on improved growth pattern in children 6 months until 24 months.

**Keywords:** Supplementary Feeding, Weight Curve, Children
The Effect of Variable Chronic Stress on Histopathologic Changes in Pancreatic Tissue and Insulin Level in Young and Old Rats

Kianoosh Gholami¹, Beheshteh Abouhamzeh², Parvin Zareian³, Iraj Mirzaii-Dizgah⁴

* 1- Medical Student Student Research Committee, Faculty of Medicine, AJA University of Medical Sciences, Tehran, Iran - kiya9sh@outlook.com 2- Assistant Professor Department of Anatomical Sciences, Faculty of Medicine, AJA University Of Medical Sciences, Tehran, Iran - b.abouhamzeh.ba@gmail.com 3- Assistant Professor Department of Physiology, School of Medicine, AJA University of Medical Sciences, Tehran, Iran - zareianj2011@yahoo.com 4- Professor Department of Physiology, School of Medicine, AJA University of Medical Sciences, Tehran, Iran - emirzaii@alumnus.tums.ac.ir

Introduction: Nowadays many people, especially army men are exposed to lots of stresses caused by biological, environmental and occupational events in their lives. These stressors could be the reason of histological changes and physiological disorders such as pancreatic and adrenal dysfunction. This study focused on the effects of chronic stress on serum corticosterone and insulin and also the histopathological changes in the pancreas.

Materials and Methods: 24 Wistar rats were divided into 4 groups (G1: young +stress-free; G2: young +stress; G3: Old +stress-free; G4: Old +stress). Stress groups underwent chronic unpredictable mild stress. After 8 weeks, serum insulin and corticosterone were measured by ELISA test and histological changes of the pancreas were studied by IHC and H&E staining. Data were evaluated by two-way ANOVA followed by a Bonferroni test for multiple comparisons.

Results: Both stress and age affect serum insulin levels (P = 0.001). Insulin levels in serum were significantly higher in rats that are exposed to the stressor than stress-free rats and also higher in young rats compared to old rats but Tissue insulin levels were lower in stress-exposed rats. There was an interaction between stress and age in corticosterone levels. Corticosterone increased in old rats following chronic stress but decreased in young rats. Histological Results showed that exocrine and endocrine cell population and Langerhans islets expansion was decreased by stress and increasing age.

Conclusion: The Results suggested that young rats, but not old rats, are adapted to chronic stress. Insulin level increases in serum and decreases in Langerhans tissue following chronic stress.

Keywords: Chronic Stress, Histopathologic Changes, Pancreas, Insulin, Corticosterone

Abstract Objectives: Peripheral nerve injury (PNI) are a relatively common type of injuries. Although peripheral nerves show some capacity of regeneration after injury, the extent of regeneration is not remarkable. The present study aimed to evaluate the effect of NGF treated mesenchymal stem cells on the regeneration of the transected sciatic nerve.

Methods: Forty-two male Wistar rats (180-200g) were randomly divided into control (Ctrl), Membrane+Cell therapy (Mem+Cell), Nerve growth factor (NGF), NGF+Cell, NGF+Mem and NGF+Mem+Cell groups. The rate of recovery was studied at the 8th week after surgery by evaluation of sciatic functional index (SFI).

Results: The Results of this study indicated that at the end of 8 weeks post-surgery, sciatic functional index improved in rats subjected to sciatic nerve injury and then treated with the NGF in combination with Cell and membrane (p<0.05).

Conclusion: The present study showed that NGF in combination with mesenchymal stem cells improved the sciatic functional index.

Keywords: Cell, Membrane, Nerve Growth Factor, Sciatic Functional Index
Comparing the Effects of Hip, Knee and Ankle Muscles Fatigue On the Dynamic Balance of the Armed Forces

Zahra Rezasoltani¹, Sharif Najafi², sirous azizi³, Afsaneh Dadarkhah⁴, Mohsen Bayat⁵

* 1- Medical specialist AJA University of medical sciences - zahra_rezasoltani1375@yahoo.com
2- Medical specialist AJA University of medical sciences - najafi201160@yahoo.com
3- Medical specialist AJA University of medical sciences - S.azizi@ajaums.ac.ir
4- MSc AJA University of medical sciences - dadarkhab@yahoo.com
5- MSc AJA University of medical sciences - Mohsenbayatspt@yahoo.com

Background: Lower extremity muscles have an important role in maintaining dynamic balance and armed forces performance. Fatigue of these muscles may affect the dynamic balance and increase the risk of injury. Fatigue, of which muscle group can affect balance more than the others, is not clear. Therefore, the aims of the present study were: 1) to investigate the effect of fatigue of each muscle group on dynamic balance 2) To compare the effect of fatigue of different muscle groups on the dynamic balance of armed forces.

Material and Method: Fifteen healthy male (age 27±2.12 years, height 178.1±3.1 cm) participated in the present study. Ankle plantar flexion machine, knee extension machine, knee flexion machine, hip abduction machine and hip adduction machine were used for the fatiguing protocol. Dynamic balance was assessed using the Star Excursion Balance Test (SEBT) before and immediately after muscle fatigue. Paired-T test and repeated measures ANOVA were used for statistical analysis. The significant level was considered at P≤0.05.

Results: Comparison of the mean distance of the eight vectors of SEBT before and immediately after implementation of the fatigue protocol showed a meaningful decrease in total score after the fatigue of all muscle groups including knee extensor, knee flexor, hip adductor, hip abductor and ankle plantar flexor (P≤0.05). There was no significant difference among post-fatigue scores in the five muscle groups (P>0.05). However, the Results showed statistically significant differences between hip abductors, ankle plantar flexors and knee extensors in anterior and anterolateral directions (P≤0.05).

Conclusion: This study showed that lower extremity muscles fatigue can reduce armed forces' dynamic balance, but there is no superiority between muscle groups with respect to total balance scores.

Keywords: Muscle Fatigue, Dynamic Balance, Star Excursion Balance Test.
The Frequency of Pulmonary Congenital Disease among Military Divers


Introduction

One of the problems with professional divers is the problems and complications of the pulmonary disease, the most common of which is the complications of pulmonary arrhythmia. In this study, the frequency of such complications among professional divers of the country has been investigated in particular, and there is a significant relationship between depth and time of diving and the disease.

Methodology:

This study was a cross-sectional descriptive study and statistical analysis using SPSS software. The statistical models used are (X2) and Pearson correlation.

Results:

Spirometric method was used to evaluate the status of pulmonary function. 46 patients with normal spirometry and 14 had abnormal spirometry. Of the reported abnormal spirometry, 10 have mild illness, and 3 are moderate and one with severe illness. Chest Images and Spirometry a total of 60 divers were surveyed related to their job. A total of 46 were normal chest and spirometric photos. Spirometry shows that 14 of these people have drawbacks as limiting illnesses. One of the diverse has Severe Restrictive Lung Disease. Spirometry has shown that 3 of the divers have Moderate Restrictive Lung Disease. Spirometry Detected 10 divers ill with Mild Restrictive Lung Disease. Discuss Pulmonary restricted disease among divers is 23.33%. Of the 60 surveyed diver, 46 (76.66%) of this maple had a normal chest and spirometric profile, considered as healthy subjects. Only 14 (23.33%) had
limiting lung injury, which is considered as a patient. Based on the Pearson correlation and P value, there is no significant relationship between the duration of diving to the year and the total amount of diving per hour and the maximum amount of diving with the limited pulmonary disease in this statistical society. But in the human review, naturally, there is no lung limitation, and anyone with a problem is considered a patient.

**Keywords:** Divers Health, Pulmonary restricted disease, pulmonary disease, Divers Chest disease
Investigating the Use of Stem Cells in Military Medicine

Ali Hajipour Talebi¹, Bagher Sadeghian², Farhad Sadeghi Kalateh Abdul³, Ali Hashamatian⁴

* ¹- Bachelor of Health Information Technology Student Research Committee, Army University of Medical Sciences, Tehran, Iran - alihajipour1375@gmail.com
2- Graduate student of Health Services Management Faculty of Health, Tehran, Iran - bsadegian@yahoo.com
3- Bachelor of Health Information Technology Student Research Committee, Army University of Medical Sciences, Tehran, Iran - Farhadsadeghi.medicine@gmail.com
4- Bachelor of Anesthesiology Student Research Committee, Army University of Medical Sciences, Tehran, Iran - ali.heshmatian.2020@gmail.com

Introduction: There is a great deal of similarity between health issues affecting civilian and military populations. The increased incidence of injuries caused by materials and explosive devices has made treatment and recovery more difficult in recent cases, requiring tissue reconstruction and Emphasizes the increasing role of stem cells in military medicine. Materials and Methods: This study was a cross-sectional review with a wide range of websites, Scopus, SIDs, ISCS, relevant journals and related articles in this field. It was used to search the Farsi and English input language and did not consider the time period for selecting articles. The articles were found in about 198 articles, of which about 135 articles were included in the study, and then these articles were evaluated in terms of title, abstract and full text. After removing repetitive and unrelated cases, about 102 related articles was selected by research.

Findings: The Results of the studies showed that significant progress has been made in military medical research, including stem cells, which has often led to a direct impact on civilian medical care. The Results also indicate that wars in some areas brought a lot of medical troubles to the military, which has increasingly shown the need for military medicine and stem cells.

Conclusion: Studies have shown that most of the stem cells have been clinically achieved so far and have a potential impact on regenerative and auxiliary drugs such as herbal medicines and immunosuppression that produce stem cells that are used in military medicine it has been very effective and efficient.

Keywords: Stem Cells, Military Medicine, Tissue Reconstruction
Effects Of Aerobic Training And Nutrition Education On Anthropometric Measurements, Lipid Profile And Fasting Blood Sugar In Obese And Overweight Military Personnel

Mohammad Samadi, Mahdi Akhoundi Klur, Gholamhossein Poortaghi, Karim Parastouei, Maryam Taghdir, Sepideh Abbaszadeh

Introduction: Overweight and obesity are among the most important health issues in the world even in military forces. The present study conducted to clarify the effects of 8-week aerobic training and nutrition education on anthropometric measurements, lipid profile and fasting blood sugar in obese and overweight personnel in an Iranian military center.

Methodology: This study was a semi-experimental a priori and a posterior one and it was conducted on 50 obese and overweight (BMI≥25) subjects in a military center. At the beginning and end of the study, these data had been measured and recorded: 24-hour food record, body mass index, fast blood sugar, and lipid profile. The intervention of the study consisted of eight weeks of aerobic training during 3 days of the week, each of which lasted 60 minutes and 3 sessions of nutrition education. The elicited data were analyzed using the SPSS Version 23.

Results: the mean and degree of freedom (df= 95%) of whole participants were significantly reduced in amounts of the weight, waist circumference, hip, total cholesterol, TG, LDL-C and fasting blood sugar but significantly increased in HDL-C (p< 0.05). The daily energy and carbohydrate intake of the whole participants and obese ones was significantly reduced (p< 0.05) but in overweight participants, this reduction was not significant (p< 0.1). The protein intake of the whole participants, as well as the overweight and obese participants, was
reduced which was not significant (p< 0.05). The fat intake of the whole participants, as well as the obese and overweight ones, was increased which was not significant (p> 0.05).

**Conclusion:** In this study, 8 weeks aerobic training and nutrition education resulted in improved body indexes, lipid profile, and fasting blood sugar in overweight and obese individuals.

**Keywords:** Military Personnel, Overweight, Obesity, Aerobic Training, Nutrition Education
The Effect of Health Promotion Education on Male Mashhad Police Staffs, Lifestyle In 2017

Mahdi Taheri¹, Abdolghafor Abas Abadi²

¹- Major Department of Health, Rescue and Treatment of I.R.Iran Police Force - taherimahdi61@gmail.com
²- Colonel Department of Health, Rescue and Treatment of I.R.Iran Police Force - ghaforabasabadi@gmail.com

Introduction: All activities that an individual perform daily are named lifestyle. Considering the important role of police in security and peace maintenance of society and the effect of personnel lifestyle on their performances, attempts should make to improve their lifestyle.

Aim: The aim of this study was to evaluate the effect of health promotion education on male police staffs, lifestyle.

Methods: This semi-experimental study was conducted on 200 police staffs selected and assigned through systematic random sampling into two experimental (100) and control (100) groups in 2017. Using health promotion lifestyle profile II (HPLP-52), different aspects of lifestyle were assessed in the two groups. Both groups completed the questionnaire before the intervention. The experimental group attended a three-session instructional program and also received an instructional package. After two months, both groups completed the questionnaire again. Data were analyzed using independent t-test.

Results: Our Results revealed the highest score after education belonged to physical activity (25.6±2) and lowest was health responsibility (24.5±2).

Conclusion: Education of health promotion can improve the police staffs, lifestyle.

Keywords: Education, Health Promotion, Lifestyle, Police staffs.
Saliva Aspartate Aminotransferase in Acute Myocardial Infarction

Mohammad-Reza Mirzaii-Dizgah¹, Mohammad-Hosein Mirzaii-Dizgah², Iraj Mirzaii-Dizgah³, Roghayeh Koshkzari⁴

Background: Precise and quick diagnosis of acute myocardial infarction (AMI) is of main medical and economic importance. The goal of this study was to recognize whole saliva total aspartate aminotransferase (AST) activity - as an available guideline - in AMI patients.

Subjects and Method: A case-control study was performed in 31 healthy persons and 31 patients suffering AMI. Saliva and serum total AST activities were measured in the 1st and 2nd morning subsequent AMI by the method of IFCC. Mann-Whitney U and Spearman rho tests were performed as statistical analysis.

Results: AST activities in serum and saliva both in the resting and stimulated conditions were significantly greater in AMI compared with healthy individuals (P<0.05). Furthermore, serum AST showed significantly partial correlation with resting saliva AST both in the 1st and 2nd morning subsequent AMI (rho=0.368, P=0.017 and rho=0.352, P=0.024, respectively) and also with stimulated saliva AST (rho=0.331, P=0.034, rho=0.443, P=0.003, respectively).

Conclusion: It supposes that saliva can be an analytical matrix for the measurement of AST in the patients suffering AMI.

Keywords: Acute Myocardial Infarction, Saliva, Aspartate Aminotransferase
MRI Etiology of Chronic Low Back Pain in a Military Population: A Pilot Study

Meysam Mirzaie¹, Shahnam Baboli², Saeed Soleiman-Meigooni³

¹ MSc Department of Radiology, Khanevadeh Military hospital, Tehran, Iran
- meysam.mirzaie@yahoo.com
² MD Department of neurosurgery, Khanevadeh Military hospital, Tehran, Iran
- baboli.shahnam@gmail.com
³ MD, MPH Department of infectious diseases, Faculty of Medicine, AJA University of medical sciences, Tehran, Iran.
- dr.saeed.meigooni@gmail.com

Introduction: Chronic low back pain (LBP) is one of the most common debilitating occupational diseases, resulted from some different etiology. It seems that the frequency of the disease is increasing, especially in young military staff. We aimed to evaluate etiology of the chronic LBP in the military staff of NEZAJA, referred to the medical council of Khanevadeh military hospital by MRI, during the first six-month of 2016.

Methods: In a descriptive cross-sectional study, we reviewed all the registries of the patients with chronic LBP referred to the neurosurgery council of Khanevadeh military hospital, Tehran the first six-month of 2016. Data were gathered using a questionnaire. We used the chi-square test and descriptive statistic in SPSS ver 22 software, IBM Corporation for analyzing the data. Result: 82 military patients with chronic LBP were studied. Mean age of the patients was 37.3±0.6 years. The most common etiologic MRI findings of LBP were disk herniation in 54 (65.9%), degenerative changes in 16 (19.5%), spondylolysis or listhesis in 9 (11%), and others 3 (3.6%). The most common military subspecialties were epic in 37 (45.1%), engineering in 24 (29.3%), and administrative in 21 (25.6%). We didn't find any relation between MRI etiology of LBP and military subspecialty by chi-square test (P=0.15).

Conclusion: The most important of our finding in this pilot study was the low mean-age of the patients, who are in the active years of their occupation. It may be necessary to re-evaluate the military recruitment process or battle-learning courses. We are continuing this study to evaluate a large sample of the patients with chronic LBP.

Keywords: LBP, Military
Lost Productivity Due to Knee Osteoarthritis of Military Personnel

Mohammad Meskarpour Amiri\(^1\), Ali Ghanjal\(^2\), Mohammad Ghanjal\(^3\)

* 1- Assistant Professor Health Management Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran - mailer.amiri@gmail.com
2- Assistant Professor Health Management Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran - aghanjal@yahoo.com
3- MSc of MBA Health Management Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran - mghanjal@yahoo.com

**Introduction:** Osteoarthritis (OA) is one of the most important diseases that have limited the physical activity of military personnel. OA can impose a negative effect on the performance of military units, through lost productivity of human resources during military missions. This study conducted with the aim of measuring and valuing lost productivity among military personnel with knee osteoarthritis.

**Materials and Methods:** Using sample size formula, 140 active military personnel with knee OA randomly selected among military personnel who attended a specialist military clinic of physical medicine and rehabilitation. All participants interviewed using face-to-face questioning by the standard questionnaire of "Valuation of Lost Productivity (VOLP)". The captured data were including hours of absence from work (absenteeism), reduced performance while working (presenteeism) and employment status changes due to knee OA. Finally, factors affecting lost productivity analyzed using ordered logistic regression at STATA software.

**Results:** 44.3% of military personnel with knee OA were engaged in duties requiring a high level of physical activity (such as lifting heavy loads, running and climbing up sloping area). The lost productivity (caused by the knee OA) was 176 hours per military personnel during 3 months. The financial burden of lost productivity estimated 16,700,787 Rials or 396.6US$ per military personnel during 3 months. The participants' age, income, living location, attitude toward disease, physical activity, teamwork, time spent from the onset of illness and presence of comorbidities had the statistically significant effect on the amount of lost productivity caused by knee osteoarthritis (P<0.05).

**Conclusion:** the knee osteoarthritis causes annually about 66,803,148 Rials or 1,586 US$ lost productivity per military personnel. Lost productivity for military personnel with knee OA can be reduced significantly through matching job characteristics to health status.

**Keywords:** Lost Productivity, Chronic Disease, Knee Osteoarthritis, Military Personnel
Self-Aid Buddy Care Training in Military Forces

Ali Rahmani¹, Mahdiye Nejadshafiee², Somayeh Rahman³

¹- Associate Professor, Trauma Research Center and Department of Military Nursing, Nursing Faculty, Baqiyatallah University of Medical Sciences, Tehran, Iran - rahmani4143@gmail.com, ²- PhD Candidate in Health in Disasters and Emergencies, Kerman University of Medical Sciences, Kerman, Iran - nejadshafiee.mahdiye@gmail.com
³- Associate Professor of Oral Medicine Department, School of Dentistry, Shahid Beheshti University of Medical Sciences, Tehran, - (S.rahmani2011@yahoo.com

Background: Most combat deaths occur on the battlefield before the casualties reach a field hospital. In combat, the combat medic may not be able to reach the casualty in time to save the casualty's life. It has been estimated that proper use of self-aid and buddy-aid skills can reduce battlefield deaths by up to 15 percent. The aim of this study was to determine the training needs of the military forces related to Self-Aid Buddy Care (SABC)

Methods: This study was a Narrative review and Qualitative study. Studies were identified by searching in literature and electronic resources and database from 2010 to 2018, with keywords of Military Force, Battlefield, Self-Aid Buddy Care and training. Also, this study was surveyed the views 30 persons of military medical experts by Delphi method, related to (SABC)

Results: There are many topics in the military first and buddy-aid training. The most important issues including familiarizing with basic life support, check up the breathing, bleeding and shock and the methods of their control, dealing with various fractures, application of temporary splints, Dressing and bandaging, dealing with bites injuries, care of the chemical, biological, nuclear warfare victims. Developing knowledge, attitudes and skills in military personnel as well as individual first aid kit can provide self-care. We recommend a first-aid training course for 250 hours. This course will include theoretical, Practical and skills learning and curriculum. This curriculum is designed for each army, naval, air and police forces. The content of the curriculum is include common, basic and specific topics.

Conclusions: One of the best ways to save lives and reduce high injuries in injured military force is self and buddy-aid primary actions. We recommend that this training course can be included with this curriculum at the beginning of the military service period.

Keywords: Military Force, Battlefield, Self-Aid Buddy Care, Training, First Aid
from Different Countries: A Systematic Review

Mahdi Easazadeh

* 1- Student Student Research Committee, Medicine Faculty, Aja University of Medical Sciences, Tehran, Iran - mahdiisazadeh@yahoo.com

**Introduction:** Hepatitis A virus is considered diseases of the developing world and is closely associated with poor standards of sanitation and living condition. Hepatitis A virus (HAV) is extremely contagious in individuals living in crowded situations such as military centers.

**Aim:** This study aims to explore the seroprevalence of HAV immunity among soldiers from different countries and decide whether vaccination should be given to military draftees.

**Methods:** This study is a review article and for writing it from the articles published in the Tim Eframe from 1995 until 2018 has been used. The databases was “PubMed”, “google scholar”, “ScienceDirect”. Out of the 40 articles found, 12 articles were selected based on compliance with the keywords and availability of the full text of articles.

**Results:** Seroprevalence of HAV among the soldiers of Iran, Korea, British Gurkha and Czech serving in U.N. forces have been studied. In Iran, a total of 1554 male soldiers with age ranged from 18 to 34 years (mean age: 21.2±1.9 years) at baseline had been evaluated. Overall, 80.3% of the analyzed individuals were anti-HAV seropositive. In Korea, The annual incidence rates were 7.4 per 100,000 persons in 2000, 1.6 in 2001, 4.4 in 2002, 9.8 in 2003, and 6.2 in 2004, according to the reported cases among approximately 500,000 soldiers. In British Gurkha soldiers Acute HAV infections have happened in Gurkha soldiers serving in Afghanistan, which made them unfit for duty for 2–3 months. In soldiers of Czech serving in U.N. forces, a total of 648 specimens were examined in 1991 - 1994. Of these 249 (38.4%) were positive and 399 (61.6%) were negative.

**Conclusion:** It seems that vaccination of HAV is not necessary for soldiers serving in their own country but in soldiers who dispatch to other countries especially developing countries is essential.

**Keywords:** Hepatitis A Virus, Prevalence, Military Personnel
The Effect of Climate Factors on the Spatiotemporal Distribution of Cutaneous Leishmaniasis among Iranian Army Population

Erfan Ayubi¹, Mohammad Barati², Arasb Dabbagh-Moghaddam³, Alireza Khoshdel⁴

1- Faculty member Modern Epidemiology Research Center, AJA University of Medical Sciences, Tehran, Iran - aubi65@gmail.com
2- Faculty member Infectious Diseases Research Center, AJA University of Medical Sciences, Tehran, Iran - mbaratim@gmail.com
3- Faculty member Preventive Medicine Department, Deputy of Health, AJA University of Medical Sciences, Tehran, Tehran, Iran - dr_arasb@yahoo.com
4- Faculty member Modern Epidemiology Research Center, AJA University of Medical Sciences, Tehran, Iran - alikhoshdel@yahoo.com

Background: The army population are at risk group for Cutaneous Leishmaniasis (CL) because of distinct activities that will increase the entrance into the chain of infection. There is an obvious geographical inequality for CL within Iran. Several factors such as climate factors can determine the occurrence of CL in a given geographical area. Describing the epidemiological profile of CL among high-risk groups such as army population can help to reduce the burden of CL in such population. Aims: The present study aimed to assess the spatiotemporal pattern of CL and to evaluate the effect of climate factors on the occurrence of CL can among Iranian army population from 2005 to 2014.

Methods: The CL cases were obtained from the health deputy of AJA Military University of Medical Sciences for each province from 2005 to 2014. Data on annual temperature, rainfall rate and wind speed of the Iran provinces were extracted from IRAN Meteorological Organization (IRIMO), a public use database. Spatio-temporal pattern of CL and the effect on the studied climate factors on the occurrence of CL were analyzed using frequentist and Bayesian approaches.

Results: A total of 5725 CL cases occurred among Iranian army population during the studied period. The results showed that two provinces of Isfahan and Khuzestan were highly at-risk areas for CL, However, several CL outbreaks have occurred in non-endemic areas such as provinces located in the west, northwestern and northeastern part of Iran. The results of frequentist and Bayesian approaches have suggested that higher temperature, lower rainfall rate and lower wind speed can influence the occurrence of CL among Iranian army population.

Conclusion: Our study demonstrates the degree of geographical inequality in the occurrence of CL among Iranian army population that may be influenced by climate factors.

Keywords: Spatio-Temporal Distribution, Cutaneous Leishmaniasis, Climate Factors, Army Population, Epidemiological Analysis
The Prediction Number of New Cases and Death of Gastric Cancer among Iranian Military Community during 2007-2019: A Time Series Analysis

Ali Reza Khoshdel¹, Majid Ziaei², Hamid Reza Ghaffari³, Saeid Azadi⁴, Yousef Alimohamadi⁵

¹- PhD Professor in Clinical Epidemiology, Military Epidemiology Research Center, Aja University of medical sciences, Tehran, Iran - alikhoshdel@yahoo.com
²- MSc Insurance organization of Iranian military community, Tehran, Iran - yousefalimohamadi@gmail.com
³- MD Insurance organization of Iranian military community, Tehran, Iran - y.ali396@yahoo.com
⁴- PhD Military Epidemiology Research Center, Aja University of medical sciences, Tehran, Iran - sazadi65@gmail.com
*⁵- MSc Military Epidemiology Research Center, Aja University of medical sciences, Tehran, Iran - y.alimohamadi67@gmail.com

Introduction: Although the trend of incidence and mortality of gastric cancer is decreasing in globally, this cancer is a problem in some areas of Iran. The purpose of the current study was the prediction of the future trend of incident cases and mortality of gastric cancer information in the military community (MC) by using time series method.

Methods: In this cross-sectional aggregate based study, the required information was obtained from the insurance organization of Iranian military community. For selecting the best model, autocorrelation function (ACF), partial autocorrelation function (PACF), and Akaike information criterion (AIC) statistics were used. Moreover, for identifying and fitting selected models, Tests of randomness on residuals and the schematic Checking of the residual graph were used. All analysis was performed by using the Interactive Time Series Modeling Package (ITSM), stata14, and Excel software. All analysis was carried out by considering 0.05 for significance level.

Results: 70.42% of cases were males and 29.58% were females. The mean age of patients was 69.51±11.52. The mean age of males and females were 70.15±11.08 and 67.98±12.36, respectively. The trend of overall incident cases of gastric cancer was increasing but mortality of this cancer had a constant trend. The trend of incident cases in males was increasing but the mortality had a constant trend. The trend of new cases and mortality in females was constant. This abstract is part of the published article with the title: The Prediction Number of New Cases and Death of Gastric Cancer among Iranian Military Community During 2007-2019 in Multidisciplinary Cancer Investigation journal that available in; http://mcijournal.ir/article-1-189-en.html
Conclusions: the number of new cases of gastric cancer among Iranian MC Males will increase in coming years, therefore programs to decrease main risk factors should be taken into account.

Keywords: Gastric Cancer, Military, Time Series
Investigating the Role of M-Health Technology in Promoting Military Mental Health: A Systematic Review

Mohammadjavad Heydari¹, Saeid Shahraki², Hossein Mohamadebrahimi³, Sevda Ebadati⁴

1- Student Student Research Committee, Faculty of Medicine, AJA University of Medical Sciences Tehran, Iran - mjheyidari313@gmail.com
2- Student Student Research Committee, Faculty of Paramedicine, AJA University of Medical Sciences Tehran, Iran - saeidshahraki@yahoo.com
3- Student Student Research Committee, Faculty of Paramedicine, AJA University of Medical Sciences Tehran, Iran - h71.ebrahimi@gmail.com
* 4- Student Student Research Committee, Faculty of Paramedicine, Tehran University of Medical Sciences, Tehran, Iran - sevda.ebadati20@gmail.com

Background: Mental health problems create challenges such as stress disorder, depression, violence, aggression, etc. for military veterans, military personnel, and their family members. M-health facilitates the needs and reduces the cost of treatment, increases the quality and accessibility of health services for military personnel and their families. Therefore, the purpose of this article is to review studies that role of m-health technology in improving the mental health of military forces.

Methods: This research is a systematic review study by searching the national and international databases such as PubMed, SID, google scholar, Science Direct, Magiran, and Springer during the period 2000 to 2018 with the keywords "M-health, Military forces, Mental Health and mental". In the first 257 articles found, and then in the next stage, 121 articles were extracted based on their relationship with the criteria of the study. Finally, 23 articles entered into the research.

Results: According to studies conducted in various countries, psychological assessment of soldiers and troops, mobile applications such as stress reduction programs have been effective. Therefore, according to the research, there has also been a significant reduction in post-stress disorder, depression, aggression, violence, and suicidal thoughts. Based on studies in this regard, m-health will have the potential to create a revolution in the health industry and will reduce the financial cost of the armed forces health sector.

Conclusions: The effective use of m-health in the health sector of the armed forces of Iran as the most important and sensitive organ of the country is very important and requires identification of opportunities and constraints, the formulation of strategic planning, along with the provision of technological, communication and executive infrastructure.

Keywords: Mobile Health, M-Health, Mental Health, Military, Military Forces
The Effect of Some Educational-Counselling Activities, Exercise Programs and Improving the Work Environment on BMI, Triglycerides and Cholesterol Level of Flight Personnel

Amirreza Esfandiari¹, Sajjad Dehghani², Mehrdad Abbasi³, Ali Shafiee⁴, Khadijeh Mahmoudi⁵, Bahman Qanbarzadeh⁶

Introduction: Military flight personnel need high levels of cognitive function and mental-motor skills due to high job responsibilities to achieve safe flight. In the field of aerobic medicine regular monitoring of the mental and physical health parameters to improve military flight personnel performances are necessary.

Materials and Methods: In the present study investigated the effects of exercise, educational-counselling classes (about dietary and stress control) and improving the work environment on total cholesterol (TC), triglyceride (TG) and BMI levels of flight personnel. In the present study 291 pilots and flight personnel of Shahid Doran Air Base (Shiraz, Iran) were contributed. The levels of TC, TG and BMI of the subjects on the two periods including before intervention (in 2014) and after interventions (in 2015) were investigated.

Results: Our Results displayed that 20.6% and 21.9% (in 2014), and 11.3% and 17.2% (in 2015) of the subjects had above 200 mg/dl and 150 mg/dl of TG and TC levels, respectively. The Statistical analysis showed a significant difference in the evaluation levels of TG and TC in the two-years investigations (P = 0.000) (P = 0.004). BMI levels indicated 67.7% and 46% of the subjects had above 25 kg/m² levels, in 2014 and 2015, respectively which showed a statistically significant difference in the two-years assessment values (P = 0.000).

Conclusion: Educational-counseling activities, exercise programs and improving the work environment significantly improved the physical
health parameters including TC, TG and BMI in pilots and flight personnel.

**Keywords:** Education, Exercise, BMI, Triglyceride, Cholesterol, Flight Personnel
Evaluating Thyroid Function Tests in Association with Sleep Deprivation; A Cross-Sectional study

Masoumeh Karami¹, Reza Nazem²

¹- PhD Department of Biochemistry, Medical Faculty, AJA University of Medical Sciences, Tehran, Iran - karami1999@gmail.com
²- PhD Department of Clinical Biochemistry, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran - rezanz6@yahoo.com

Background: Sleep deprivation as a stressful situation has been linked with disruption of energy metabolism and the balance of hormones such as thyroid hormone. In this study, we aimed to investigate the thyroid hormones serum concentration in people who suffered from sleep deprivation.

Materials and Methods: In this descriptive and Cross-Sectional study, we evaluated forty-one individuals with sleep deprivation and 41 individuals that have good sleep condition, from the staff of AJA University of medical sciences. Sleep quality (by Pittsburgh Sleep Quality Index), stress level (by ISMA Stress Questionnaire) and Serum levels of thyroid hormones (including; free T3, free T4 and TSH) were assessed between these two groups.

Results: There were significant differences in serum levels of FT4 (P= 0.01) and TSH (P= 0.02) between two groups. There were also significant correlations between Sleep Score and Stress Score (P= 0.008) and between Stress Score and FT4 (P= 0.03) in the case group (Poor Sleep condition).

Conclusion: the Current study showed that thyroid function tests (T4 and TSH) have an obvious increase in the poor sleep condition. We also found Correlations between Sleep Score, Stress Score and FT4 in the case group (Poor sleep condition) that suggest sleep deprivation can affect thyroid hormones. It seems that there is still a need for further investigations in this field to obtain more definitive results.

Keywords: Sleep Deprivation, Pittsburgh Sleep Quality Index, TSH, T3 and T4
Military Dentistry and Oral Health in Military Units
Preparation of Nano-formulation of Agave Extract and Comparison of its Antifungal Effect to Agave Extract on Candida Albicans

Maryam Iman¹, Amin Hashemzadeh², Hasty Iman³

Background and Aim: According to Candida resistance to a variety of anti-fungal drugs and side effects of some medications, new compounds are required in order to treat the disease created by this yeast. Regarding the antimicrobial effect of the Agave, the purpose of this research is to prepare the nano-formulation of Agave extract and compare its antifungal effect to Agave extract on Candida Albicans.

Methods: Alcoholic and aqueous extracts of Agave were made by Soxhlet Method. Next, the antifungal effects of these extracts in different amounts against Candida were studied using laboratory methods including disk-diffusion and well diffusion. Then, minimum inhibitory concentration (MIC) and minimum fungicidal concentration (MFC) of the extracts were determined.

Results: MIC and MFC average of ethanolic extract were measured at 6250 and 12500 µg/mL, and MIC and MFC average of methanolic extract at 3125 and 6250 µg/mL respectively. Also, MIC and MFC average of alcoholic nano-formulation No.1 (1.8 g of sesame oil, 100 µL of Tween 80, 0.3 g of extract, 1 cc of distilled water) of Agave were measured at 6250 and 12500 µg/mL respectively. Average values of 80, 90, 100 and 110λ of the good diffusion test of alcoholic nano-formulation No.1 were measured at 13.33, 13.33, 14.00 and 14.67 µg/mL respectively. Also, average values of 10, 20, 30, 40 and 50 λ of the disk-diffusion test of alcoholic nano-formulation No.1 were measured at 3.33, 5, 17, 18 and 16 µg/mL respectively.

Conclusion: Based on the obtained results, it is a possibility for Agave extract to be used as a cure for diseases caused by Candida fungus in the future.

Keywords: antifungal effect, extract, Agave, Candida Albicans.
Dentistry: A Modern Consideration in Military Aircrew

Bita Rohani1, Hamzeh Shahali2

1- DDS, MSc Associate Professor of Oral Medicine, Faculty of Dentistry, AJA University of Medical Sciences, Tehran, Iran - rohani_bita@ajaums.ac.ir
* 2- MD, AME Assistant Professor of Aerospace and Diving Medicine, Faculty of Aerospace and Diving Medicine, AJA University of Medical Sciences, Tehran, Iran - hamze.shahali@gmail.com

Introduction: These days, dentistry experiences accelerate and extraordinary evolution, especially in aviation field. It has two significant roles in aerospace medicine. First, a careful periodic examination of the oral cavity and, if necessary, a proper treatment is very important for the oral health and so the overall wellness of military aircrew. Second, aviation regulations in the field of dentistry often are the guidelines in identification of pilot’s bodies and other fatalities after air accidents. We want to introduce aviation dentistry to young flight physicians.

Methods: This article is resulted from the review of references, aviation regulations and reliable scientific articles regarding to the role of dentistry in aerospace medicine.

Results: Various military and civil references and authorities have pointed to the key role of oral health in military aircrew. Providing a precise dental record (at least one OPG) is important in appropriate oral diagnosis, treatment planning and communication between dentists, aerospace physicians and forensic physicians. Dental materials used for these people should have minimum changes against atmospheric pressure fluctuations and sustained gravitational forces, otherwise, they may encounter different complications including barodontalgia. It is also important to observe the interval between dental procedures and flight to prevent possible problems. Due to their occupational sensitivity, the possibility of developing stress-related problems such as bruxism and some oral lesions including recurrent aphthous stomatitis and herpetic infection is increased. Forensic dentistry in identification of aircrew bodies is a fraction of the cost and also much faster compared to DNA identification.

Conclusion: Dentistry can play a substantial role in modern military aviation. It is very important to pay attention to oral health of military aircrew because of their occupational sensitivity. Therefore, close relationship between dentists and aerospace medicine physicians and making necessary consultations is essential.
Keywords: Barodontalgia, Bruxism, Dentistry, Herpetic Infection, Military Aircrew, Recurrent Aphthous Stomatitis
Military Nursing Care in Extraordinary Condition
Comparison of the Effect of Training of Conflict Resolution and Management of Emotional Intelligence on Life Satisfaction's Spouses of War Veterans Affected Psychological Disorders

Mahboubeh Zia Khodadadian

Introduction: Warfare makes an addition to adverse and psychosomatic disorders on combatants also it puts their families exposed to dangerous and problems.

Purpose: This study performed on object for comparison the effect of training conflict resolution and management of emotional intelligence on life satisfaction's spouses of veterans affected psychological disorders.

Results: The results showed that there wasn't significant difference in total mean rank of life satisfaction before intervention between conflict resolution, management of emotional intelligence and case groups (p>0.05). Also, there wasn't a significant difference between the three groups after intervention in the first six weeks (p>0.05). Whereas There was a significant difference between the mean rank of life satisfaction in three groups at final phase (p=0.001). Also, the Toki test showed that there was a significant difference between the case group and two other groups (p<0.05) but there was no significant difference between conflict resolution and management of emotional intelligence groups.

Conclusion: Considering the results of this study which explanatory the influence two techniques of intervention on life satisfaction. Therefore it is recommended that be used the conflict resolution skill and management of emotional intelligence programs to improve the health level and life satisfaction's veterans families.

Keywords: Life Satisfaction, SWLS Questionnaire,Conflict Resolution, Management of Emotional Intelligence
Surveying on healing effect of mixed ointment (honey, sesame oil, bacteriophage) on burn injuries in rat

*Jamal Rashidiani¹, Hamid Tebyanian², Hamid Kooshki³*

**Background:** Wound healing is a significant problem in most conditions which should be more considered and researched. Aims: Combined ointment (honey, sesame oil and Pseudomonas phage) was used to determine the healing process in infected second degree burns to Pseudomonas aeruginosa.

**Methods and Materials:** For this purpose, a hot metal square piece, 4 × 2 cm in diameter, attached to a weight of 50 g, was applied to the skin for 5 seconds, which was previously heated to 100 °C in the oven. The pressure applied to the skin was the same for all animals. The rats were divided into 2 groups. Group 1: Combination ointment treatment and group 2: No drug (as control). Sampling was done on 7, 14 and 21 days. The tissue samples were fixed by formalin 10% and transferred to the pathology for histological examination. Wound healing in groups was investigated by microscopic and macroscopic methods, which included: hematoxylin-eosin staining and closed wound time - wound (using Image J software).

**Results:** The results of the comparison microscopic and macroscopic methods showed that the combined treatment group had a significant difference (p <0.05) with non-ointment groups, which had the most microscopic and macroscopic changes in the combined ointment group, which was an important parameter in assessing the burn treatment process. Hematoxylin-Eosin staining revealed that skin epithelial ointment was used in the group of ointment on 21 days, while in the other control group skin epithelialization was not performed completely on 21 days.

**Conclusion:** Therefore, wound healing Combination ointment was improved in the treated group compared to the control group. So, the ointment could be used as a suitable candidate for the treatment of infected second-degree to Pseudomonas aeruginosa.

**Keywords:** Honey, Sesame Oil, Pseudomonas Phage, Burn, Skin
Objective: This project has been designed with the aim of determining the effects of buddy aid training in crisis on soldiers' knowledge, attitude and practice.

Materials and Methodology: This is an experimental study conducted on two groups in 2017. Two military units were selected by simple random sampling and divided into two groups of experimental and control. Each group includes 25 soldiers that were selected by a simple random method. 12 hours of buddy aid training, using a mixed teaching method were held by the researcher for the experimental group. The control group received training in the routine form. A Knowledge and Attitude Questionnaire and 6 researcher-made checklists were completed by research units in both experimental and control group before and one week after the intervention.

Findings: There was no significant difference between the groups in terms of demographic information (p>0.05). After the intervention, there was a significant difference between experimental and control group in the average score of knowledge and practice (p<0.05), in this way that the experimental group's score in both fields of knowledge and practice had increased. However, no significant difference was observed between the experimental and control group in terms of attitude (p>0.05).

Conclusion: The current study showed that buddy-aid training in crisis, using a mixed teaching method is effective.

Keywords: Crisis, Soldiers, Knowledge, Attitude, Practice.
Nursing care for injured of radioactive wars in an emergency of military hospitals

Ali Askari¹, Maryam Beheshtifar², Nasrin JafariGolestan³

1- Nursing Student 2- Nursing Student, Student Research Committee, Faculty of Nursing, AJA University of Medical Sciences, Tehran, Iran. - ali.askari137493@gmail.com
2- Education Development Center staff of AJA University of Medical Sciences 1- BSc in Nursing, Education Development Center, AJA University of Medical Sciences, Tehran, Iran - maryam.beheshtifar@gmail.com* 3- Instructor PhD Candidate of Nursing in University of Social Welfare and Rehabilitation, Instructor, Faculty Member of AJA University of Medical Sciences, Tehran, Iran. -jafari_golestan_nurse@yahoo.com.

Introduction: The growing use of peaceful nuclear resources and the unusual use of these weapons is crucial to their management by military centers. Therefore, experienced and prepared medical personnel in the face of nuclear incidents will have a significant impact on the care and reduction of injuries.

Materials and Methods: This review article is based on the search of Google Scholar, SID, PubMed and library resources from 2005 to 2018.

Results: In the face of nuclear accident victims, careful planning and training for medical staff in military hospitals are essential. Vital measures such as control of vital signs and clinical symptoms such as nausea, vomiting, diarrhea, itching, redness, bloating and stabilization should be performed first. then, the injuries triage is one of the first critical programs that should be considered, The dosimeter of nuclear incident victims with certain devices is the basis for future medical treatment. SO, the decontamination of the injured, the wound, the mucus and the skin is done, so that in their open wounds, we carry out a complete debridement of the radioactive material. As the absorption rate of radioactive material is higher than of the skin, the eyelids, ears, mouths, pharynx, and genitals need to be removed from the radioactive material.

Conclusion: The military hospitals, as the first group to deal with nuclear incidents, will have a significant role in identifying radioactive events. Emergency medical personnel in military care centers should have a strong academic base to be able to make timely. Therefore, they should receive the necessary training in different ways in order to provide the best care for the radioactive injured.

Keywords: Nursing, Radioactive Injured, Emergency, Military Hospital
Comparing the Effects of Cold and Hot Compresses on Urinary Retention after Cardiac Catheterization.

Seyed Hamid Seyedalangi, Seyedeh Azam Sajadi*, Zahra Farsi, Esmail Mohamadnezhad

1- Master of Sciences in Critical care nursing AJA University of Medical Sciences
   - hseyedalangi@gmail.com
2- Assistant professor AJA University of Medical Sciences - arasajadi@yahoo.com
3- Associate professor AJA University of medical sciences - zahrafarsi@gmail.com
4- Assistant professor Tehran University of Medical Sciences - asreno1358@yahoo.com

Introduction: Cardiac catheterization is one of the most valuable invasive cardiovascular diagnostic tests. One of the most common and unpleasant complications after Cardiac catheterization is acute urinary retention. This study aimed to compare the effect of hot and cold compresses on urinary retention after cardiac catheterization.

Methods: This study was a semi-experimental study that examines the effect of hot and cold compresses on acute urinary retention following cardiac catheterization in 132 hospitalized male patients of selected AJA University of medical sciences hospitals. There were three groups; control, hot compresses and cold compresses. The elimination time of urinary retention and the severity of urinary retention were measured using visual graded scale before and after the intervention. Data were analyzed by statistical Software of SPSS (version 21).

Results: The severity of urinary retention between the cold and hot groups was not significantly different (P = 0.51). However, the elimination time of urinary retention was significantly lower in the hot compresses group than in the cold compressed group (P = 0.03).

Conclusion: Regarding the effect of hot compresses on reducing the elimination time of urinary retention, it is recommended to use warm compression on the suprapubic area.

Keywords: Cardiac Catheterization, Hot Bag, Ice Bag, Urinary Retention
Veterinary, Food Hygiene and Nutrition for Armed Force
Heavy Metal Contamination and Health Risk Assessment in Drinking Water Resources of Military Areas: Case Study of Sistan and Baluchistan Province, Iran

Majid Radfard¹, Hesam Akbari², Amir Adibzadeh³

1- Researcher Health Research Center, Life Style Institute, Baqiyatallah University of Medical Sciences, Tehran. - radfard.tums.ac.ir@gmail.com 2- researcher Health Research Center, Life Style Institute, Baqiyatallah University of Medical Sciences, Tehran. - hesam120@yahoo.com * 3- Researcher Health Research Center, Life Style Institute, Baqiyatallah University of Medical Sciences, Tehran. - rsr.adibzadeh@bmsu.ac.ir

Introduction: Access to safe and clean drinking water is an essential element of a healthy life also known as the primary human needs. The present study was conducted to investigate heavy metal concentrations of drinking water Excess health risk of Heavy metals (Cr, Pb, and Cd) intake through drinking Water resources of Military Areas.

Materials and Methods: In this cross-sectional study water samples were collected from wells, which are the main supply of drinking water. At each sampling point, two samples were collected and maintained in 2 liters volume polyethylene's containers for further analyzes. These bottles had been rinsed at least three times with double-distilled water and 1:1 ratio of nitric acid. The bottle of samples was acidified to decrease absorption of heavy metals. In total, 493 samples were collected. All water samples were placed on ice bag at 4oC and transferred to the laboratory. Heavy metal concentrations were analyzed using graphite furnace atomic absorption spectrometry and were compared with permissible limits regulated by country and the World Health Organization.

Results and Discussion: The hazard quotient (HQ) and Excess Lifetime Cancer Risk (ELCR) were determined to show the carcinogenic and non-carcinogenic effects of HMs, respectively HQs were found in the order of Pb>Cd >Cr and subsequently HI index was also estimated for all HM in two age groups (children and adults) comparisons indicate no possibility of non-carcinogenic effects on the local population The values for ELCR were found in the order of Cr >Cd >Pb. The ELCR index was found above acceptable risk levels for chromium and cadmium in both children and adults groups.

Conclusion: Furthermore inter-metal correlation results revealed that heavy metals have common sources result from geogenic and anthropogenic activities and these are major sources of water contamination in Sistan-and-Baluchestan province.
New Ways of the Food Industry in Increasing Food Quality and Safety of the Military Forces

Mahmoud Movahedi¹, Hakimeh Ghanoon², Rasoul Abhar³

* 1- Instructor, Department of Psychiatry and Behavioral Sciences Research Center, School of Nursing, Baqiyatallah University of Medical Sciences, Tehran, Iran - mm.movahedi388@gmail.com
2- MSC Master of Science in Food Industry of Iran University of Medical Sciences - h.ghanoon@yahoo.com
3- MSC MS in Health Education, Marine Medicine Research Center, Baghiyatallah University of Medical Sciences, Tehran, Iran - abhar19@gmail.com

Introduction: Proper nutrition one of the most important aspects of health is that food security means that everyone has access to enough food at all times to have a healthy lifestyle, which is especially important in military forces. Therefore, providing high quality, safe and safe food to military personnel is of paramount importance to civilians.

Materials and Methods: In this review, authored research articles on the new ways in the food industry, ways to increase the safety of food in military forces were searched in databases using the keywords of new ways of food industry, Food Safety, food quality, Food Packaging, the health of nutritionists and Military Personnel. Finally, 20 articles were reviewed.

Conclusion: The dietary composition of the diets of the military personnel should be adjusted in such a way as to possess certain qualities, low weight and being dense resistance to environmental conditions, especially heat, humidity and easy to use. Provide the energy needed to fit the physical activity. Product health is another important issue that should be considered in the preparation of these diets, due to the use of efficient systems such as quality assurance systems and risk analysis at the critical point in the supply and processing centers of these diets. Subsequently, these measures it will increase the level of satisfaction, military capability and efficiency of the officers.

Keywords: New Ways of Food Industry, Food Safety, Food Quality, Food Packaging, Military Personnel
Review the Importance of Paying Attention to the Nutrition Type and Nutritive Portion of Military Personnel in Critical Situations

*Parisa Hasemi¹, Shiva Pashaie², Alieh Pashaie³*

Introduction: Iran is one of the 10 most disaster-prone countries in the world, and human-made disasters (war) threaten it. In most cases, the crisis cannot be prevented; therefore, with prediction, planning and proper management. Considering that nutrition is one of the priorities in crisis situations, and military personnel plays an important role in managing the crisis, military feeding should be given special attention so that they always have a high health index.

Methods: The present study is a review article by reexamining articles related to the subject in the databases such as Google Scholar, PubMed, Magiran, and SID during the years 2008 to 2018 with the keywords of "military personnel", "nutrition", "and nutritive portion "," crisis".

Findings: Due to the importance of food in maintaining the well-being and morale of individuals, special attention should be paid to the feeding of military personnel. The portion of the military persons must contain all essential nutrients that are compact and light and can stay free of corruption for a long time. Also, nutritional composition is also important in feeding military personnel; for example, in a war situation, the amount of protein should be lower than normal because it increases the body's need for water. But carbohydrates reduce the need for water. When preparing portions, it was necessary to pay particular attention to dietary activity, portion weight, portion packaging and dietary intake and composition and diversity.

Discussion: Nutrition of military forces has a particular importance. The basis of military nutrition is portion and the type of portion depends on the mission, operation, location, facilities, and personnel. Generally speaking, the portions should be in a way that, in addition to meeting the body's requirements, can be maintained for a specified period of time. The nutritive portions of military persons should be examined continuously and their weaknesses identified and addressed.

Keywords: Military Personnel, Nutrition, Nutritive Portion, Crisis
Simultaneous Detection and Discrimination of Enteropathogenic E. Coli Using Multiplex-PCR

*Abbas Hajizade¹, Peyman Avakh², Shahram Nazarian³, Yousof Tarverdizadeh⁴*

Background: Enteropathogenic E. coli are diarrheagenic bacteria responsible for many diarrheal cases all over the world. Indeed, some of them have the ability to be exploited as a bioterrorism agent. There are six pathotypes of diarrheagenic E. coli: enterotoxigenic E. coli, enterohemorrhagic E. coli, enteroinvasive E. coli, enteropathogenic E. coli, enteroaggregative E. coli, and diffusely adherent E. coli. Though enterohemorrhagic E. coli and enterotoxigenic E. coli are the most potent pathotypes which are considered as the potential disabling microbial agents, however, other pathotypes are also important in this regard. Water and food resources can be contaminated by these bacteria, so detection of these bacteria can protect the personnel against a bioterrorism disaster. In the present study, a multiplex-PCR was developed for simultaneous detection and discrimination of different enteropathogenic E. coli pathotypes.

**Materials and Methods:** For this aim, firstly the specific gene(s) of each pathotype was selected and retrieved from GeneBank. Then, appropriate primers were designed for amplification of a special region of each gene. The primers were designed so that the resultant fragment of each gene had a defined length and the fragments' lengths were unique. Indeed, primers were designed to be compatible to be used in a multiplex PCR reaction. At last, the primers were used for the detection and discrimination of enteropathogenic E. coli.

**Results:** It and sta genes of ETEC, eae and bfp genes of EPEC, stx of EHEC, pCVD and aggR genes of EAEC, virF and ipaH genes of EIEC, and daad gene of DAEC were selected. Analysis of the designed primers showed their proper specificity and accuracy. The primers were able to detect and discriminate the enteropathogenic E. coli in an unknown media with a high specificity and accuracy.

**Conclusion:** This assay allowed the detection and discrimination of enteropathogenic E. coli in a single reaction tube.

**Keywords:** Enteropathogenic E. coli, Molecular Detection, PCR
Military Medical Ethics for Future Military Medicine
Introduction: Triage is derived from a French word which means to sort. Having a suitable triage is accompanied by many ethical principles. Time waiting is also an important factor in triage. Priority of decision making is an essential topic in diagnosis and management of mass casualties; hence time, place and other situation are important determinants in the case of disasters.

Methods and Materials: This study recommends to create the triage ethical codes in disaster systematically. Educating of religion moral and ethical principles to paramedics, simultaneously with the other scientific guidance of acute care is more effective in combat injuries. According to religious jurisprudence and medical ethics, Patient safety and complication prevalence reduction all are considered as the main principles.

Results: Due to the level of critical setting, the patient condition would determine and select the priority of management. In disaster circumstances, triage is done based on the principle of unharmed working. Whenever the facilities such as equipment and medical staffs are sufficient it does not need to triage to select the patient but patient priority is still important. Based on ethical rules this means: "Avoid triage except it is necessary". Proper comprehensive triage is a procedure that arranges and manages the field patients on a scientific ethical and legal basis.

Conclusion: Even according to the ethical rules it is recommended to make adequate emotional concern to the victims who are not a priority of help in triage. Pay no attention to grading in triage may lead to irreversible and non-compensational outcomes. Making satisfactory from a disaster management is difficult from a stable situation as they need the optimal utilities within the shortest time.

Keywords: Ethics, Military Medicine, Disaster, Triage.
Work Ethic and Work Commitment in the First Semester of Medical and Paramedical Students at AJA University of Medical Science In 2017

Peiman Jahandari¹, Sepide Ghorbani², Mohammad Ali Momeni³

1- Master of science (msc) counselling master of science (msc) counselling , research and technology center for military medicine - p.jahandar@gmail.com
2- Nursing student nursing student, member of Research Committee of AJA University of Medical Sciences, Tehran, Iran - sepide.ghorbani1376@gmail.com
* 3- Medical student Medical student, member of Research Committee of AJA University of Medical Sciences, Tehran, Iran - dr.momeni813@yahoo.com

Introduction: Work ethic is a factor in creating order in the work and sense of performing duties in people because ethic creates commitment and make people sensitive to their duties and working behaviour without any external control factor. There are many ethical resources for students of medical science because the work ethic and work commitment in medicine are very important. Attention to work ethic in any organization should be prioritized. Therefore, in this research, work ethic has been studied on medical and paramedical students in the first semester. The purpose of this study is comparing work commitment and work ethic of these two groups.

Material and Methods: This study is a cross sectional analytic study. The statistical population of this study is all medical and paramedical students of the AJA University of medical sciences. The data collection tool was CJI questionnaire that measure the two components of reliability and success. The obtained data were analyzed using Spearman correlation coefficient and analyzed using SPSS version 21 software and p<0/05 considered significant.

Results: there is no significant relationship between the level of work ethic and academic discipline. there is no significant relationship between reliance and academic discipline. there is a significant relationship between the success and academic discipline, success is more in paramedical students than medicine students. Generally, the level of work ethic at the whole of the students was 57 % that is relatively favorable.

Conclusion: The high work ethic in the first semester student's indicative, cultural and social factors, individual and personality factors and family and educational factors, such as the internalization of work ethic from childhood, creating the sense of a person.

Keywords: Work Ethic, Students of Medical Science, Medical and Paramedical
Explaining the Role of Professional Ethics of Health Care Providers in the Treatment and Care of Wounded in Combat

Zahra Farsi

* 1- Associate Professor AJA University of Medical Sciences - zahrafarsi@gmail.com

Introduction: Although adherence to ethical principles is necessary for all professions, the importance of this issue in care services, especially the provision of care for the wounded, veterans and their families, is critical in the unusual conditions. The aim of the study: The aim of this study is to explain the role of professional ethics of health care providers in the treatment and care of the wounded during the Iraq-Iran war.

Methods: This is a qualitative conventional content analysis was conducted in 2016-2018. The researcher collected, coded and analyzed data, simultaneously. In a survey conducted by the researcher, 952 pages of the 119 written narratives of health care providers during the Iraq-Iran war were collected. To analyze the data, the principles of conventional content analysis were used.

Results: The results of the analysis led to emerging 4 themes. The main themes included the role modelling, fairness and justice, human worthiness, and altruism.

Conclusions: This study showed that health care providers adhered to the principles of professional ethics in the care of war wounded and their families in critical situations during the war and years later. They followed these rules spontaneously and voluntarily, on the basis of their conscience and privacy in pursuing professional work.

Keywords: Combat, Health Care Providers, War, Content Analysis, Professional Ethics, Qualitative Study
Professionalism Teaching Strategies based on the Medical Education Reform Program

Alireza shahriari¹, Nasrin khajeali², Leila Afshar³, soleiman ahmady⁴, Ehsan tofighi⁵

Introduction: Ethics and professional commitment in medicine and life sciences have been a great importance throughout the centuries, with the special attention being paid to the development of medical sciences and the changing of doctor-patient relationships and to the reform of medical education programs. The rules of professionalism or professional commitment form the basis for the interaction between physicians and the community, and education professionalism must be integrated into general medical education programs. The purpose of this study was to identify and review the appropriate teaching strategies for professionalism based on the Medical Education Reform Program.

Method: This descriptive-comparative study was carried out in 2017. In order to compare the method of teaching professionalism base on the program of medical education reform in Iran and ACGME and EFIM standards and the practical guide in medical education. Data were compared using Bereday’s four-stage model: description, interpretation, juxtaposition and comparison.

Result: Based on the comparison of methods for assessing the standards of books and articles on the teaching Professionalism, and considering 4 phases for general practitioner education (basic sciences, introduction to clinical phase, clinical phase (clerkship) and clinical experience (internship). Evaluations method were selected for each phase.

Conclusion: according to the educational objectives of each phase and the identification of milestones in the Medical Education Reform Program, appropriate teaching strategies were proposed for each phase, but what is important is that professionalism training or professional commitment should be included in the entire curriculum, so that at first, a cognitive foundation will be formed in a student's mind and by deliberately think and empirical learning, the components of professional commitment will be strengthened and institutionalized in student's.
course, the vital role that the environment of institutions and educational centers in the development, training, implementation and evaluation of professional competence should not be ignored.

**Keywords:** Professionalism, Professionalism Teaching, Medical Education
Complementary and Alternative Medicine for Soldiers
Formulation and Characterization of Liquorice Essence Nano-Gel and Investigation against Candida Albicans, Mucor Hiemalis, And Aspergillus Niger

Maryam Iman, Mohammad Hassan Dehghani*, Hasty Iman

* 1- Associate prof. chemical injuries research center - iman1359@yahoo.com
2- Chemical injuries research center - drmhd2013@gmail.com
3- Department of Chemistry, Faculty of Basic Sciences, Islamic Azad University, Yadegar Emam Khomeini Branch, Tehran, Iran., Iran - Department of Chemistry, Faculty of Basic Sciences, Islamic Azad University, Yadegar Emam Khomeini Branch, Tehran, Iran., Iran iman.hasti8@gmail.com

Introduction and purpose: In the past few years, infections caused by opportunistic fungi and pathogens have considerably contributed to the increases in the incidence of diseases, especially in people with immunodeficiency and in patients who have received grafts. Limitations that exist in treating fungal diseases, including shortage and high prices of antifungals and complications and drug resistance resulting from taking drugs, have increased interest in producing and using herbal and natural antifungals. This research intended to formulate liquorice essential oil encapsulated in nanogel and compare its antimicrobial effect against the fungal species Candida albicans, Aspergillus Niger, and Mucor hiemalis with that of liquorice extract.

Materials and Methods: After preparing the liquorice essential oil encapsulated in nanogel, the disk diffusion method was employed to determine its antimicrobial properties against the three mentioned fungal species. Its minimum inhibitory concentrations and minimum fungicidal concentrations for the active fungal strains were then determined, and tests were performed on its release control and swelling at various acidity levels but in environments similar to that we had in mind, and the obtained results were studied. Statistical analysis of the data was carried out using the Prism statistical software and one-way ANOVA, and the diagrams were drawn using the same software.

Findings: C. albicans exhibited greater sensitivity to the liquorice essential oil in nanogel compared to Aspergillus Niger and Mucor hiemalis; i.e., A. Niger and M. hiemalis were more resistant to the liquorice essential oil in nanogel compared to C. albicans. Conclusions: Utilization of nanoscience in pharmacy makes it possible to produce drugs that have greater contact with their target areas compared to ordinary medicines and, therefore, lower doses of them can be used with greater antifungal effects, and production costs will also decrease.
compared to ordinary medications produced using conventional methods.

**Keywords:** Nanogel, Liquorice, Pathogenic Fungi, MIC, MFC, Drug Release, Drug Swelling
The Effects of Short-Term Green Tea and Caffeine Supplementation on Aerobic Performance and Health in Military Officer Students in Hot Environments

Vahid Sobhani¹, Mohammad Mehrtash², Hossein Shirvani³, Mahdi Fasihi-Ramandi⁴

¹- Assistant Professor Exercise Physiology Research Center, lifestyle institute, Baqiyatallah University of Medical Sciences, Tehran, Iran - sobhani518@yahoo.com ²- PhD student Exercise Physiology Research Center, lifestyle institute, Baqiyatallah University of Medical Sciences, Tehran, Iran - m_mehrtash_67@yahoo.com ³- Assistant Professor Exercise Physiology Research Center, lifestyle institute, Baqiyatallah University of Medical Sciences - shirvani.h2006@gmail.com ⁴- Assistant Professor Molecular Biology Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran - fasihi.m@gmail.com

Introduction: Today use of green tea and caffeine supplement increased between athletes. In the literature of these supplements widely speak about the effects of the anti-inflammatory, anti-oxidant and improve performance. Also, Implementation of long-term and high-intensity exercises are associated with safety changes, including the release of inflammatory mediators, activation of white blood cells subunits, acute phase proteins, and pro-inflammatory and anti-inflammatory cytokines. In this study, we try to investigate the effects of these supplements on inflammatory, total antioxidant capacity (TCA) responses and performance of officer students in the hot environment.

Methods: Therefore, 23 officer students of Imam Hussain University after completed the health form and divided into 3 groups of Caffeine (C, n=8), green tea (GT, n=8) and placebo (PL, n=7). They consume 640 mg green tea extract and 6 mg/kg of body weight caffeine and maltodextrin for the placebo. The subjects performed maximum aerobic exercises in separate workouts in hot temperature (38 degrees C, 60% relative humidity) in summer. Blood samples (5 ccs) before and after each test collected from the brachial vein and then evaluated biochemical factors in the biochemistry laboratory.

Results: The results of this study show that caffeine supplement significantly decreased TNF-α (C: 17.94±5.29, PL: 31.38±7.18), increased VO2max (C: 41.73±2.86, PL: 34.88±1.30) in supplement group than placebo and no significant difference showed in IL-1β (C: 21.52±3.36, PL: 23.47±3.16) and TAC between groups (C: 0.80±0.21, PL: 0.72±0.04) (P≤0.05). Also, green tea supplement significantly decreased TNF-α (GT: 15.03±4.31, PL: 31.38±7.18), increased TCA (GT: 1.04±0.06, PL: 0.72±0.04) and VO2max (GT: 44.43±3.06, PL: 34.88±1.30) in supplement group than placebo. Also, no significant
difference showed in IL-1β (GT: 26.86±5.05, PL: 23.47±3.16) between groups (P≤0.05).

**Conclusion:** finally concluded that supplementation of green tea and caffeine supplements 90 minutes before exercise may decrease TNF-α, increase TCA and improve performance in a hot temperature.

**Keywords:** Green Tea, Caffeine, Inflammation, Oxidative Stress, Hot Environment
Dietary Recommendation of Iranian Traditional Medicine (Persian Medicine) For Repair Fractures

Elham Parsa¹, Mahmood Khodadoost², Armin Zareiyan³

* 1- MD student of PhD of Beheshti university of medical sciences - dr.eparsa@sbmu.ac.ir
2- MD-PhD professor of traditional medicine of Beheshti university of medical sciences - mkhodadoost@sbmu.ac.ir
3- PhD Aja university of medical sciences - arminzj@yahoo.com

Background: The incidence of fracture and its complications is increasing. Most acute fractures are successfully treated with conservative methods. Iranian traditional medicine is from Holistic schools. In this medicine, special nutritional recommendations have been made to help treat and improve these patients quickly.

Methods: the main authoritative texts of traditional medicine such as Tebbe Akbari (Arzani) and Exir Azam (Azam Khan), for extracting nutritional recommendations for fractures have been investigated.

Results: After the initial therapeutic measures, including the confirmation of broken limbs, certain dietary regimens have been proposed for treatment aid. In the first few days, in order to prevent the bleeding and swallowing of simple foods such as egg yolk, chicken, it is recommended then to create a hard new bone, diet for heavy foods such as sheep’s head and pie (Kale Pache), Halim, barley and Wheat, grown-up yeanling. Other food descriptions other recommended foods include mummies, sweetmeat, fresh fish, cheese, rice with milk. Observing the nutritional recommendations of traditional medicine along with other therapies is suggested to patients with fracture and injury so that they can be improved for patients in a shorter period of time, and as a result, these therapies can play an important role in reducing the economic burden of society and the family.

Keywords: Fracture, Persian Medicine, Dietary
The Evaluation of Classic Ranger Training with and Without Omega-3 Supplementation on Ranger Troop Volunteers VO2 MAX

Behzad Bazgir¹, Vahid Sobhani², Behzad Hajizadeh³, Reza Sabzevari Rad⁴

* 1- Assistant professor Exercise Physiology Research Center, Life Style Institute, Baqiyatallah University of Medical Sciences, Tehran, Iran - bazgirbehzad@yahoo.com
2- Associate Professor Exercise Physiology Research Center, Life Style Institute, Baqiyatallah University of Medical Sciences, Tehran, Iran - sobhani518@gmail.com
3- PhD student Department of Sports Medicine, Justus-Liebig-University, Giessen, Germany. - hajizadeh.sci.phys@gmail.com
4- PhD student Exercise Physiology Research Center, Life Style Institute, Baqiyatallah University of Medical Sciences, Tehran, Iran - sabzevarireza63@yahoo.com

Background: Today's polyunsaturated omega-3 fatty acid gain intense attention for its beneficial impacts on human body systems. The aim of present research was to evaluate the effects of 8 weeks of classic training with omega-3 supplement consumption on ranger troop's maximal oxygen consumption (VO2MAX).

Materials and Methods: Forty-one healthy ranger troop volunteers; with 18.6±09 years old selected and randomly divided in to supplement (n=21) and placebo (n=20) groups. Both groups performed classic training 4-5 sessions per week for 8 weeks. Then each group was asked to consume 1gr/day omega-3 (for supplement group) or placebo (for the placebo group) for 8 weeks. The VO2MAX s was estimated before and after the study period.

Results: Finding showed that exercise with and without omega-3 consumption, significantly up-regulated VO2MAX from 40 to about 57(ml. kg. min).

Conclusion: Our study showed that classic training independent of levels of omega-3 supplementation induces positive changes in the cardiorespiratory function of ranger troop volunteers.

Keywords: Fish Oils, Omega-3 Fatty Acids, Ranger Training, Cardiorespiratory Endurance
Plant Kingdom as a Source of Future Radioprotective Agents: A Systematic Review

Roohollah Ahmadian¹, Seyed Mohammad Zarei²

1- Student Student Research Committee, Baqiyatallah University of Medical Sciences, Tehran, Iran - roohollah.ahmadian75@gmail.com
2- Associate professor Faculty of Pharmacy, Baqiyatallah University of Medical Sciences, Tehran, Iran - sm.zarei63@gmail.com

Introduction and Background: Recently, exposure to ionizing radiation during radiotherapy of tumours, nuclear accidents and even by terroristic attacks and its detrimental consequences like cancers has engaged scientist's minds to find compounds to neutralize their damages. The health of nuclear reactors workers and new threatens of nuclear wars are good reasons for research to develop a novel poly-herbal formulation for radioprotection. In spite of serious attempts performed in synthesizing radioprotective agents, till now no impressive prosperity have been attached and most proposed compounds are inefficient with deleterious side effects at therapeutic doses. Meanwhile, natural products as a rich source of various lead compounds attracted the significant interest of researchers and many studies performed around them which are desultory and incapable of showing others next direction. Hence, to find most studied plant families around radioprotection this review was carried out.

Methods: Using PubMed and Scopus databases, a review performed to find papers published between 2000-2017 October in which keywords of "natural products OR herbal OR plant" AND "radioprotective OR radioprotectant" has been mentioned in their abstract. Papers about living organisms other than plant kingdom were excluded and plant families defined by Global Biodiversity Information Facility (www.gbif.org). Moreover, the proposed mechanism of radioprotection was determined.

Results: Among studies reported radioprotective activity of plants significantly, most of them are around Lamiaceae, Zingiberaceae, Rutaceae, Araliaceae and Fabaceae families.

Conclusion: Evaluating published papers shows although various plant genera participated in studies, active plants against ionizing radiation are from families contain a high amount of antioxidant secondary metabolites such as flavonoids and tannins. Also, free radical scavenging activity is the most proposed mechanism of radioprotection which is in accordance of the type of secondary metabolites dominate in mentioned families and evaluated genera which these data guide researchers to these families as prone plants for discovering new compounds as the radioprotectant.

Keywords: Ionizing Radiation, Natural Products, Radioprotective, Free Radical Scavenging
Health System Management
Curriculum Development Master's Degree Program in Aerospace & Diving Nursing (Sub-Surface)

Nasrin Jafari golestan¹, Masoud Fallahi khoshknab²

1- Ph.D Candidate of Nursing, University of Social Welfare and Rehabilitation Sciences, Instructor, Faculty member, AJA University of Medical Sciences Iran, Tehran, Ph.D Candidate of Nursing, University of Social Welfare and Rehabilitation Sciences, Instructor, Faculty member, AJA University of Medical Sciences, Faculty member of Nursing, Nursing Management Department -Jafari_golestan_nurse@yahoo.com

* 2- Professor, Faculty member, PhD of nursing - Iran, Tehran, Professor, Faculty member, PhD of nursing, social welfare and rehabilitation university, Head of Nursing Department.

Introduction and Objective: Training nurses will have a significant impact on Iran's defense status in healthcare. Strengthening the scientific base of nurses in the field of aerospace and diving (sub-surface) can be considered as a national necessity.

Methodology: This program has been developed based on the latest evidence in medical science and educational strategies such as (student-centered, problem-solving, group discussion, seminar, critical thinking and special community based) with emphasis on prevention and rehabilitation.

Findings: This field is one of the branches of military nursing. The training of aerospace and diving (sub-surface) is essential for nursing support from the forces employed in this field.

Keywords: curriculum, nursing, aerospace, diving, sub-surface
Cascade Effect in Medical Errors

Rohallah Moradi¹, Ali Naseri-ara², Mhammad Hadi Zangeneh³, Akram Zangeneh⁴, Mohammad Mahdi Zangeneh⁵

Introduction: Doctors, nurses, and pharmacists work very hard to give people safe care and to prevent mistakes. But, every person can also help to prevent mistakes. For example, medication errors are unintended mistakes in the prescribing, dispensing and administration of a medicine that could cause harm to a patient. A cascade effect is an inevitable and sometimes unforeseen chain of events due to an act affecting a system. If there is a possibility that the cascade effect will have a negative impact on the system, it is possible to analyze the effects with a consequence/impact analysis. Cascade effects are commonly visualized in tree structures. Objectives: The purpose of the study was the cascade effect in medical errors.

Methods: In this article, the Prerequisite data was elicited from several sources especially interpretative sources and data banks such as ISI, PubMed, Scopus, Google scholar, ISC, and SID according to keywords. Then this information was categorized and analyzed.

Results: In biology, according to Mold and Stein, the term cascade refers to "a process that, once began, proceeds stepwise to its full, seemingly inevitable, conclusion". In medicine, cascade effect may also recur to a chain of events interned by an unnecessary test, an unexpected result, or patient or physician anguish, which results in ill-advised tests or treatments that may cause damnify to patients as the results are pursued. An example would be ordering a full body CT scan without a clear reason, finding an incidentaloma and undergoing a debilitating surgery to remove it, notwithstanding the fact that the condition was asymptomatic and possibly benign.

Conclusion: A cascade effect is an inevitable and sometimes unforeseen chain of events due to an act affecting medicine and results in ill-advised tests or treatments that may cause harm to patients as the results are pursued.

Keywords: Medical, Errors, Cascade Effect.
Iranianized model of HICS in military hospitals

Masoomeh Rashidi\textsuperscript{1}, Esmail Heidaranloo\textsuperscript{2}, Mahmood Movahedi\textsuperscript{3}, Nahid Aghdasi Mehrabad\textsuperscript{4}

1- Lecturer, Trauma Research Center, Baqiyatallah University of Medical Science, Tehran, Iran  
- masumerasid@gmail.com

* 2- Assistant Professor, Trauma Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran - eheidaranlu@gmail.com

3- Assistant Professor, Trauma Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran - mm.movahedi388@gmail.com

4- Education Expert, Faculty of Nursing, Baqiyatallah University of Medical Sciences, Tehran, Iran - aghdasi_n@yahoo.com

Introduction: According to the WHO, the vulnerability of Iran to earthquakes is 1,000 times that of the United States' and 100 times that of Japan's. Hospitals act as the main unit for providing services in the first phase of crises. In order to prepare hospitals in crisis situations, one of the most trusted guidelines is the Hospital Accident Management System. Given the importance of military hospitals and their mission, in this article, we have reviewed the general system and its implementation in military hospitals.

Methods: This study was performed by reviewing the organizational chart of HICS and the usual organizational chart in several military hospitals in Tehran, along with reviewing the HICS executive experience in military hospitals in other countries and assessing how HICS could be run in several military hospitals in Iran.

Results: Comparison of the HICS table with the executive system in the military medical centers shows that in order to select the appropriate individuals for the situations in the HICS table, these main sites should be divided into three categories: 1) Totally similar positions in terms of title and job description. 2. Places where their duties are carried out under normal circumstances with different organizations and these subsites are not predicted independently in the normal organizational chart of the centers. 3. Places which are not predicted in terms of title and not in terms of job descriptions in common organizational tables in Iranian hospitals.

Conclusion: More extensive studies on the Iranian military hospitals and the accurate analysis of the needs of Iranian health centers show that the HICS indigenous model is one of the most suitable models for establishing a comprehensive instruction for dealing with any type of disease. The crisis is in every dimension.

Keywords: HICS, Military Hospitals
The Effects of Overcrowding Management on Patient Safety in the Emergency Department

Iman Jafari Iraqi¹, Hosein Babatabar Darzi², Hosein Mahmoudi³, Abbas Ebadi⁴

* 1- MSc, Faculty of Nursing, Baqiyatallah University of Medical Sciences, Tehran, Iran
  - iman.jafari.1366@gmail.com
2- MSc, Faculty of Nursing, Baqiyatallah University of Medical Sciences, Tehran, Iran
  - babatabar1343@yahoo.com
3- Dr., Faculty of Nursing, Baqiyatallah University of Medical Sciences, Tehran, Iran
  - h.mahmoudi53@gmail.com
4- Dr., Faculty of Nursing, Baqiyatallah University of Medical Sciences, Tehran, Iran
  - ebadi1347@yahoo.com

Introduction: The emergency department is among the most crowded hospital units to which, many high-risk patients are admitted. The function of this department considerably affects the functions of other hospital units as well as patient satisfaction. Emergency department overcrowding can cause different negative consequences. This study was aimed at determining the effects of overcrowding management on patient safety in the emergency department.

Methods: This quasi-experimental study was made in 2015 in the emergency department of a teaching military hospital located in Tehran, Iran. Primarily, the perceived safety of 35 patients was assessed by using the Patient Satisfaction with Nursing Care Quality Questionnaire. Then, an overcrowding management intervention was implemented based on the stabilization model. Finally, the perceived safety of 35 newly-patients was assessed after the intervention. The SPSS software (v. 19.0) was employed for data analysis.

Results: There was a significant difference between the pretest and the posttest mean values of patients’ perceived safety. The rate of baseline patient safety was 65% which enhanced to 82% after the intervention (P < 0.001).

Conclusion: The overcrowding management protocol can significantly enhance patients’ perceived safety. Therefore, this protocol can be used to lighten emergency department overcrowding and enhance patient safety and care quality.

Keywords: Patient Safety, Emergency Care, Hospital
Operating Room Services Quality Evaluation in Military Health Organization

Mohammad Karim bahadouri, Ehsan Teimurzadeh, Amir Khoshbin

* 1- Associate professor of Health Management Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran, bahadori_57@yahoo.com
2- Associate professor of Health Management Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran - teymoorazadeh@yahoo.com
3- Master of Health Management Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran - khoshbin_amir@yahoo.com

Background and Aim: Quality function deployment (QFD) is a method used to evaluate and plan the quality of products and services. It is based on the satisfaction of customers, translating their needs into measurable characteristics. This study aimed to evaluate the quality of surgery Service in a military health organization.

Methods: It was a cross-sectional descriptive-analytical study carried out in 2016 in a military health organization. A researcher-made questionnaire was used for data collection. 86 surgery patients of military health organization were selected randomly for the study. Patient’s requirements (voice of customer) and service elements (voice of organization) was identified by the research team. Then the relationship between patients' expectations and the service’s elements, the relationship between the service’s elements themselves were defined; the service quality model based on the house of quality diagram designed and current quality level of surgery was evaluated.

Results: The requirements considered most important by patients (voice of customer) were “Physician assistance” followed by “Service Access”. The requirement considered least important by patients was “Facilities maintenance.” And “Ease of suggestions/complaints”. The hospital team (voice of organization) considered “decreasing the number of complaints per month” the highest priority item of projected quality. “Number of patients referred” was considered the lowest priority item.

Conclusion: QFD was successfully applied to evaluate and redesign service for the operating room of military health organization. Considering the current quality improvement approaches of health care organizations in Iran, QFD is a useful tool for making patient requirements an integral component of the health service design process. The current quality model designed in this study can be a general guide to evaluate the quality of services provided by the operating room and other wards of military health organization.

Keywords: Quality Function Deployment, Operating Room General, Voice of customer, Service Elements.
Military Pharmacist: A Neglected Necessity for Strategic Planning

Roohollah Ahmadian

* 1- Student Student Research Committee, Baqiyatallah University of Medical Sciences, Tehran, Iran - roohollah.ahmadian75@gmail.com

Introduction: ‘Military pharmacist' is a term that refers to a pharmacist employed in the military organization. These pharmacists are the auxiliary aid to logisticians in critical situations and play vital roles in homeland defense readiness. Many years ago it began by apothecary activity in Europe but today it comprises some specialized branches. In recent decades, there is a scarcity of updated information about armed pharmacists' roles. This study purpose is to review the crucial roles and investigate future perspectives of these healthcare providers in military organizations.

Method: Electronic databases including PubMed, Scopus and Cochrane were searched by keywords "Military pharmacy" and "Army pharmacy" until June 2018. Inclusion criteria were studies with English full-text in which pharmacists roles were evaluated in military services. Some citations were added manually and also Historical and those ones related to community pharmacists were excluded.

Results: A total of 336 potentially pertinent studies were primarily identified from databases. After elimination of 19 duplications, 276 studies were excluded by title and abstract and the remains were full-text reviewed. The pharmacist role in the military is not limited to design a special box of resuscitation items for war traumatic wounds or chemical warfare agents. Surveillance on the national strategic stockpile, distribution and also prescription monitoring of pharmaceuticals in both peace and war conditions, cost-effectiveness analysis due to the limitation in expenditure for military organizations are major critical roles for military pharmacists.

Conclusion: In spite of these defined duties for military pharmacists, there is not a true recognition for the importance of pharmacists in Armed forces. Research development and Formulating novel pharmaceuticals like radioprotectants to overcome modern challenges such as nuclear attacks, redefine the roles in military hospitals, new insights in the management of drug shortage crisis in wars or in post-disaster healthcare are opportunities for the shift in the practice of philosophy in pharmacist roles.

Keywords: Military Pharmacist, Pharmacy, Emergent Pharmacist, Pharmacist Role
Innovation
The Role of Telehealth in the Modern Wars

Reza Eslami1, Mahmood Momenzade2, Hamzeh Shahali3

1- Assistant professor Assistant professor, Aerospace Research Center, Aerospace and subaquatic medicine school, AJA University of Medical Sciences, Tehran, Iran - Rezaeslami7@yahoo.com
2- Assistant professor Assistant professor, Aerospace Research Center, Aerospace and subaquatic medicine school, AJA University of Medical Sciences, Tehran, Iran - mg_mahmood@yahoo.com
* 3- Assistant professor Assistant professor, Aerospace Research Center, Aerospace and subaquatic medicine school, AJA University of Medical Sciences, Tehran, Iran - Hamzeh.Shahali@gmail.com

Introduction: Telehealth can be used to telecommunication technologies to provide health-related information and information for support of patient care, office activities and health education, which today is a key component of multimodal strategies to improve health services delivery in developed countries. Telehealth is considered as a means to improve access to care by reducing transportation costs and increasing patient comfort in obtaining care. These points have particular importance in the modern wars.

Methods: This article is based on Internet search using the term telehealth, modern Wars, new threats, and related phrases.

Findings: The main importance of telehealth is to improve patient health and reduce mortality. Military forces must be rehabilitated as quickly as possible and regain their efficiency and, in the course of such a process, incur less harm, especially physically. When they are able to have access to better medical care, they can receive medical care and treatment before they become critical in their acute conditions and in the wake of modern wars and manage them with a better health care. This method is an appropriate option to support people under their supervision in the event of sudden occurrences. Telehealth can help care for injuries in accident areas, even in the long run.

Discussion and Conclusion: There is good evidence of telehealth assistance as an effective clinical intervention for some conditions, including patients with COPD, diabetes and heart failure. Telehealth in modern wars can improve the quality of life and care of injured people. This method can be effective in the early diagnosis of medical problems and early onset of therapeutic interventions within a short time after the occurrence of an accident. Telehealth may potentially improve treatment outcomes in such cases and reduce the cost of treatment. It seems that telehealth for many physicians and authorities is acceptable.

Keywords: Telehealth, Modern Wars, Health, New Threats
Genetic Application in Analysis of Ancient Specimens

Ali Mohammadi\(^1\), Peyman Zargari\(^2\), Maryam Ramezani\(^3\), Mahmood Tavallai\(^4\)

1- Msc - Human Genetics Research Center, Baqiyatallah University of Medical Sciences Tehran, Iran. - sepehre3293@Gmail.com
2- MSC - Human Genetics Research Center, Baqiyatallah University of Medical Sciences Tehran, Iran. - Zargari.Peyman@yahoo.com
3- Dr - Human Genetics Research Center, Baqiyatallah University of Medical Sciences Tehran, Iran. - maryamrameza@ut.ac.ir
* 4- Dr - Human Genetics Research Center, Baqiyatallah University of Medical Sciences Tehran, Iran - mahtavalla@bmsu.ac.ir

Ancient DNA analysis can inspire both the public and scientific community. Knowing about the ancient human genome and comparing with modern human being genome can give us a new perspective about evolution and migration of human during the history. Ancient DNA (aDNA) is DNA isolated from ancient specimens. It can be also loosely described as any DNA recovered from biological samples that have not been preserved specifically for later DNA analyses. Examples include the analysis of DNA recovered from archaeological and historical skeletal material, mummified tissues, archival collections of non-frozen medical specimens, preserved plant remains, ice and permafrost cores, Holocene plankton in marine and lake sediments, and so on. Due to the considerable anthropological, archaeological, and public interest directed toward human remains, they have received considerable attention from the DNA community. In the very beginning of 1980, a group of Chinese researches proved that DNA is preserved in the tissues of ancient bodies. At 1984 researchers succeeded in the extraction DNA from quagga, an extinct member of the horse family, and in 1985 they could extract DNA from mammoth remains. At 1984 Paabo demonstrated that DNA was present in a mummified infant from an Egyptian dynasty. Genetic genealogy is the use of DNA testing in combination with traditional genealogical methods to infer relationships between individuals and find ancestors. Genetic genealogy involves the use of genealogical DNA testing to determine the level and type of the genetic relationship between individuals. In this method, we using DNA markers such as autosomal SNPs, Y SNPs and mtDNA SNPs. By analyzing the sequence of mtDNA and chromosome Y, we can identify the path of human migration throughout history and the common ancestor of humans.

Keywords: Ancient DNA, Genealogy, DNA Testing, DNA Markers, Mtdna, Snps
Effect of 3 MHz Frequency Low-Intensity Pulsed Ultrasound on Growth and Viability Indexes in Rat Bone Marrow Isolated Mesenchymal Stem Cells: in Vitro Study

Ehsan Bakhshian¹, Leila Rouhi², Dariush Hamrahi³, Hamed Bagheri⁴, Mahmoud Seraj⁵

1- Master of Science Cellular and Molecular Research Center, Shahrekord University of Medical Sciences, Shahrekord, Iran - Ehsan_bakhshian_d@yahoo.com
2- PhD Animal Physiology Department, Basic Sciences Faculty, Shahrekord Branch, Islamic Azad University, Shahrekord, Iran. - lrouhi59@gmail.com
3- Master of Science Aseman Radiotherapy Center, Malayer, Iran. - dariushhamrahi@yahoo.com
4- Master of Science Radiation and Wave Research Center, Aja University of Medical Sciences, Tehran, Iran. - hamed_parto@yahoo.com
* 5- Master of Science Military Epidemiology Research Center, Aja University of Medical Sciences, Tehran, Iran. - mscseraj@yahoo.com

The current study aimed to investigate the effects of discontinuous low-intensity ultrasound on the differentiated osteogenic cells derived from rat bone marrow mesenchymal stem cells. Rat bone marrow cells were isolated from the femur and tibia bones and plated in a medium containing fetal bovine serum (FBS) and cultured to passage 3. The cells were divided into two groups (ultrasound, and control). The cells of the first group were subjected to 3 MHz ultrasound at 355 mW/cm². All cells were amplified during the seven days and their growth indexes were evaluated by calculating population doubling number (PDN) and drawing the growth curve. For viability of affected cells with ultrasound, MTT assay was performed in seven days. To confirm the mesenchymal stem cells, flow cytometry tests were used and semi-quantitative RT-PCR analysis was applied to investigate markers and the expression of osteogenic genes. The data of the MTT test revealed that the viability of cells and their proliferation, when exposed to ultrasound radiation, was significantly higher than the control group (P <0.05). Furthermore, the findings showed a significant increase of population doubling time (P ≤ 0.004) and cell growth curve (P <0.005) in the ultrasound group.

Keywords: Ultrasound, Frequency Low-Intensity, Bone Marrow, Mesenchymal Stem Cell, MTT Assay, Population Doubling Number
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