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REVIEW ARTICLE

Occupational Risks of Health Professionals in Turkey as an Emerging Economy

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Abstract

BACKGROUND Health services are one of the work areas that contain important risks in terms of the occupational health and safety of the laborer. Professionals in various areas of health services encounter biological, chemical, physical, ergonomic, and psychosocial risks, particularly in hospitals.

OBJECTIVES This study has been performed to evaluate the impacts of the occupational risks on health of health professionals in Turkey.

FINDINGS In Turkey, as an emerging economy, the history of studies on health professionals is not longstanding. There have been various regulations intended for the occupational health and safety of health professionals in line with the Regulation of the Provision on Patient and Staff Safety prepared in 2012. However, applications can differ from region to region, institution to institution, and person to person.

CONCLUSIONS We believe that this review will lead health professionals to be aware of occupational risks and contribute to planning health services for health professionals.

KEY WORDS health professional, occupational risk, occupational health and safety, Turkey

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Health services is a work area that can lead to important risks with regard to health and safety of employees.¹ The possibility of encountering occupational risks as health professionals can change according to the profession, the work itself, and the unit of the hospital.

This study has been conducted to assess the effects of occupational risks on the health of employees working in hospitals in Turkey. In our country, the working conditions of health professionals are quite strenuous in some regions. Precautions regarding employee safety are insufficient in hospitals and health institutions in Turkey. Professional development and education opportunities for health

professionals are limited, and the professional organization is also not sufficient.² It has been reported that as the working hours per week increase, the possibility of being injured also increases. It has also been specified that professionals who did not receive the occupational health and safety training before have a higher incidence of accidents.³ Nonfatal accidents at work and occupational disease cases of health professionals rank at the top compared with other industries.⁴ However, in Turkey, the inclusion of hospitals in the “Very Dangerous Jobs” class was barely approved in 2009 via “Hazard Classes List Notification Relating Work Health and Safety.”^{5,6}

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OCCUPATIONAL RISKS OF HEALTH PROFESSIONALS

The risks that affect the health status of health professionals can be classified as biological, physical, ergonomic, chemical, and psychosocial. The American National Institute for Occupational Safety and Health has reported 29 kinds of physical, 25 kinds of chemical, 24 varieties of biological, 10 kinds of ergonomic, and 6 kinds of psychosocial hazards and risks.⁷⁻¹¹

Biological Risk Factors. Biological agents transmitted by blood and bloody body fluids. These biological agents can be transmitted through the skin because of its impaired integrity and through mucous membranes (mouth, eye, and urogenital mucosa) as a result of the exposure to blood or bloody body fluids and some sterile body fluids. Although there are almost 30 microorganisms that can be transmitted in this way, the most important are hepatitis B virus, hepatitis C virus, hepatitis D virus, and human immunodeficiency virus (HIV) because they can lead to systemic infections and because of their current prevalence. The diversity of the clinical outcomes of these agents varies from asymptomatic infections to severe and even fatal infections.^{2,3,12-21} The transmission of infections to health professionals via blood occurs mostly through penetration with needles used in patients, injury with contaminated sharp instruments, or mucosal splashes with infected blood or body fluids.^{19,22-27} Two thirds of health professionals have stated that they have been exposed to blood or body fluids at least once; HIV infection was related to the profession in 57% of HIV-positive health professionals, and the risk of developing hepatitis B infection in health professionals is 10 times greater than in the general population.^{17,18,28}

Agents transmitted by respiration and droplets. Some agents, such as droplets and droplet cores, can be transmitted via the respiratory secretions of patients. Tuberculosis, measles, rubella, chickenpox, *severe acute respiratory syndrome*, influenza, meningococcal, and pneumococcal infections transmit in this way.^{9,18} According to the various studies performed in Turkey, health professionals, particularly nurses, are at risk, especially those working in pulmonary diseases services.^{16,28-30} Demir et al performed a study to determine the tuberculosis infection risk among health professionals working in a pulmonary disease hospital and another hospital that does not have a pulmonary disease clinic. They reported that the tuberculosis

infection risk was 7.4 times higher in the pulmonary disease hospital than in the hospital without a pulmonary disease clinic because of the higher tuberculosis exposure.³¹

Infections transmitted via direct contact. These infectious agents transmit via directly contact with the patient. There is no need to be in contact with the skin or mucosa or for loss of skin integrity for transmission. Resistant bacteria and skin parasites such as scabies are examples of microorganisms that can lead to severe infections in inpatients.¹⁶

Chemical Risk Factors. Various chemicals are key agents that are used to diagnose and treat diseases, perform preventive applications, and take hygienic precautions, although they are hazardous for health status of health professionals. Health professionals are exposed to chemicals (disinfectants, anesthetic agents, cytotoxic agents, drugs, some heavy metals such as mercury and latex, etc.) repeatedly and sometimes in substantial amounts. These agents can have a wide variety of effects that vary according to concentrations, contact time and method, presence of other risky agents, personal features of the health professional, and so on.³² Exposures to acids and alkalis, salts, dyes, volatile organic solvents, and various drugs, including primarily anticancer drugs in pathology, biochemistry, hematology, and other laboratories, are important risk factors for a series of diseases from allergy to cancer.^{7,33}

Drugs that cause severe organ toxicity and other toxic effects; show mutagenic, carcinogenic, or teratogenic effects; or are implicated in reproductive system disorders are defined as “hazardous drugs.” Long-term exposure to antineoplastic/cytotoxic drugs used in chemotherapy leads to potential risks in health professionals. At the stages of preparation, administration, and waste disposal of these drugs, severe health outcomes can be observed as a result of inhalation of powder and droplets, absorption through the skin, and ingestion of contaminated food, as well as particularly teratogenic, carcinogenic, and genotoxic effects that threaten reproduction during pregnancy.^{9,17,18,32,34-39}

Physical Risk Factors. The main physical risk factors that affect health professionals are ionizing and nonionizing radiation, noise, lighting, electrical assembly, slippery floors, temperature extremes, ventilation, vibration, and indoor pollution.^{7,15,17,40,41} Ionizing radiation is one of the most important physical hazards in hospitals, and it influences various different health professionals in different units and with different specializations (mainly radiotherapy, nuclear medicine, and

radiology staff). Ionizing radiation has carcinogenic, teratogenic, and mutagenic impacts, and it is fatal in high concentrations. It leads to burns, cataracts, infertility, and genetic and congenital anomalies in moderate concentrations, and it causes cancer (particularly leukemia) with long-term exposure.^{6,17,18,40}

Nonionizing radiation is another physical risk factor for health professionals. It has been stated that the increase in the use of devices with electromagnetic fields and exposure to these electromagnetic fields deteriorate the body's balance and lead to diseases. It has been reported that exposure to nonionizing radiation, particularly during a work time of about 8–10 hours, leads to a feeling of dryness in the throat, eye problems, headaches, allergies, facial flushing, insomnia, sensitivity to sounds, hearing difficulties, and fatigue.^{7,42,43}

Loudness is another important factor that disrupts people, complicates communication, restricts relaxation, adversely affects and harms the nervous system, reduces work efficiency, and creates hearing problems. Studies have found that loudness has increased to a level of discomfort for patients and health professionals in hospitals in the last 50 years.^{17,40,44–46}

The ventilation system of the hospitals affects the health protection of both patients and health professionals in terms of nosocomial infections. Therefore, ventilation systems should be designed to prevent nosocomial infections by paying attention to biological and physical features of related microorganisms.

Another physical factor that can affect health professionals is workplace lighting. A sufficient and satisfactory level of lighting should be arranged to provide a comfortable workplace for health professionals.⁴⁷

Ergonomic Factors. The more harmonization is ensured between employer and work environment, the better the safety and efficiency that can be provided to employees.^{48–50} When there is inconsistency between the physical capacity of the laborer and the physical requirements of a job, occupational diseases may occur.⁵¹ In particular, nurses are the third most likely—after heavy industry workers and heavy vehicle drivers—to experience musculoskeletal system problems.^{7,52} According to a study performed in Turkey examining the prevalence of low back pain in the last 12 months and related factors, it was found that the prevalence of low back pain in the last 12 months was at a high level that affected working life (73.3%).⁵³ Another study indicated that frequency of low back pain in the last year was 58.3% in nurses and health officers and 33.0% in sick nurses.⁵⁴

Psychosocial Factors. *Job satisfaction* describes the harmony between the employee's expectations of the institution and the profession and the opportunities offered to the employee. Job satisfaction is one of the factors that affects burnout, which has severe outcomes, particularly in professions that provide services directly to people. An intense burnout state can lead to problems such as resignations, incompatibility in marriage and family, decreased self-esteem, difficulty concentrating, social isolation, and so on.^{55,56} A factor that adversely influences job satisfaction and leads to burnout in the workplace is violence. Violence, which has affected the health of health professionals recently, can be observed as a problem in every health institution and health professional.^{7,40} Violence in a health institution is defined as a verbal or behavioral threat or physical or sexual assault.^{57,58} It has been increasingly acknowledged that health professionals, who must be in direct contact with individuals in difficult situations because of their deteriorated health status, are the most frequent targets and victims of occupational violence among all professions.^{59–62} In Turkey, 5 doctors have been killed in the last 10 years as a result of violence in hospitals: Göksel Kalaycı (November 11, 2005), Ali Menekşe (January 15, 2008), Ersin Arslan (April 17, 2012), Melike Erdem (November 30, 2012), and Kamil Furtun (May 29, 2015). Some studies have estimated that health professionals' risk of exposure to violence from patients, families of patients, or others is 4–16 times greater than other employees in various sectors (such as guards, police officers, bank employees, retail workers, and those working in the transport sector).^{60,63–65}

According to the 2002 report of the World Health Organization titled "Workplace Violence in the Health Sector," the International Labor Organization and the International Union of Nurses, it has been reported that more than 50% of health professionals have been exposed to violence.⁶⁶ According to this report, approximately 3%–17% of health professionals were exposed to physical violence, 27%–67% were exposed to verbal violence, 10%–23% were exposed to psychological violence, 0.78% were exposed to sexual violence, and 0.8%–2.7% were exposed to ethnic violence.⁶⁷ This violence has long-term effects on health professionals, such as despondency, job loss, discontentedness, decreased job satisfaction, anxiety, life-threatening injury, restlessness, anger, stress disorder, nightmares, sleep problems, and so on. Violence in the workplace not only affects the employee but also influences the colleagues, family, and friends of the individual.^{68–76}

Studies performed on workplace violence have found that psychological violence has reached more dangerous levels compared with physical violence. Psychological violence in the workplace (mobbing) is defined as systematic and hostile attitudes of one or several people toward one individual with unethical communication. Mobbing is generally performed by management teams, but it can also be performed by colleagues, subordinates, or a group of employees. It has been specified that health professionals, particularly nurses, are at serious risk of being exposed to mobbing in the workplace.⁷⁷⁻⁸⁰ Mobbing leads to excessive stress, exclusion, anxiety, digestive system problems, sleep disorders, depression, anxiety, job dissatisfaction, and burnout.⁷⁷⁻⁸⁸

OCCUPATIONAL HEALTH AND SAFETY SERVICES FOR HEALTH PROFESSIONALS IN TURKEY

The Central Council of the Turkish Medical Association initiated the first studies on the health status of health professionals in Turkey in 1989 with the slogan, “This is our health.” Then a database on the subject was set to be established.⁸⁹ Creating a requirement for a committee that should carry out studies regarding the health and safety of employees working in the hospital was discussed in 1999-2000; pilot studies were initiated, but these studies were not completed. Precautions intended to protect the safety of health professionals were compiled in the 15th item of the “Notification on Principles and Procedures Related to Ensuring the Patient and Staff Safety and Protection in Health Institutions,” which was approved on April 29, 2009. In a sense, this document created a basis for the establishment of the related OHS unit.^{90,91}

The concept of OHS services are defined by the US Occupational Safety and Health Administration and National Institute of Occupational Safety and Health and Hospital Safety Committee. Accordingly, they are explained as first-step health care that improves and protects the health of health professionals and fulfills therapeutic care services for outpatients. An effective hospital occupational health program must include at least the following components: recruitment examinations, including a full medical history; periodic inspections; health and safety training; immunizations; health counseling; environmental control and surveillance; record systems of health and safety; and coordinated planning between hospital departments and services. Furthermore, an environmental control and

surveillance program should be part of the occupational health program and required precautions should be taken by performing risk analyses.⁹¹⁻⁹⁵

The Association of Public Health Professionals (originally HASUDER in Turkey) Occupational Health Working Group (OHWG) held their first meeting at Gazi University, Medical Faculty, Ankara, hosted by the Chief of Medicine on September 18, 2010. This Health Organization Workshop of Health Professionals in Hospitals meeting, organized by HASUDER and OHWG in 2010, addressed the problems of hospital OHS units. It was stated that the basic problem was financing. Because it was not written in the Health Communication Notification, it was decided that employers should pay the costs in case the payment was a burden to employees. It has been emphasized that committees in hospitals still need to reach a consensus about organization, function, and finance.⁹⁶

Public health professionals had an opportunity to take advantage of occupational health and safety services with the help of the “Regulation on the Provision of Patient and Staff Safety” published by the Ministry of Health on April 6, 2011, in the Official Gazette and the “Occupational Health and Safety Law” published by the Ministry of Labour and Social Security on June 30, 2012, in the Official Gazette.⁹³ Later, hospitals were informed about the implementation of regulations and the establishment of the employee safety unit via instructions issued May 14, 2012.⁹⁴ In the HASUDER-OHWG workshop hosted by the Antalya Akdeniz University Medical Faculty on September 13-15, 2012, organization of employee health units, the functions of these units, and financing topics were discussed and a model was established by receiving the contributions and recommendations of the participants. In this workshop, the aim was to recommend a model for the organization of newly established OHS units or those to be established in the future, the functions of these units, and financing. It was also intended to notify institutions and to create a common language in terms of naming concepts to avoid complicating the issues.⁹⁷

ECONOMIC ASPECTS OF OCCUPATIONAL HEALTH AND SAFETY

Industrialization and technological developments have led to occupational injuries and environmental risks, which cause socioeconomic losses not only in Turkey but also in many other countries, including European countries.⁹⁸⁻¹⁰⁰ Although there are precautions taken

against occupational risks in developed European countries, occupational accidents and diseases due to profession have not been prevented for long years. This indicates that it is hard to overcome the risk of occupational disease and accidents. On the other hand, the gradual decrease in occupational accidents and job-related diseases in European countries in the last 10 years demonstrates the importance of applying precautions. In this regard, when we consider the outcomes of Turkey, we should support regulations in the workplace, create incentive systems, ensure the effectiveness of the Occupational Health and Safety Workers' Representation and Occupational Health and Security Committees, and increase training to foster social consciousness instead of waiting for employees and employers to apply these rules themselves.⁹⁸ According to the International Labor Organization, it has been reported that there is \$1.25 trillion loss each year as a result of OHS problems.¹⁰¹ In Turkey, the loss of only social security systems has been reported as approximately 4 million Turkish Liras per year.¹⁰² According to a report of Turkey Statistical Institute on 2007 gross domestic product values, the total costs of occupational accidents in Turkey are almost 35 billion Turkish Liras per year.¹⁰³

CONCLUSIONS

In Turkey, although there are occupational health and safety units in state and private hospitals,

hardware, personnel, and services are still lacking. Therefore, the applications can vary from region to region and institution to institution as well as person to person.⁹² In this regard, it may be efficient in Turkey for the government to control services for health professionals and to see that these services are provided independent of the requests of individuals, as in various European countries.⁹⁴ The health of health professionals also affects the health of the community. When we consider the regional differences of hospitals in terms of technical equipment, staff, and quality of services in Turkey, which is an emerging economy, it is very important to apply the regulations specified by national laws and procedures across the country, including the public and private health sectors. Additionally, it is crucial to decrease health workers' exposure to occupational risks.¹⁰⁴

OHS is crucial in terms of resource allocation. If a portion of economic resources can be allocated to OHS training and organization, the efficiency and incremental change in production as a result of the application of OHS regulations can accelerate economic growth and development.¹⁰⁵ The importance of OHS precautions has increased because of the understanding that the costs to mitigate the harm of occupational accidents are higher than the costs of preventing occupational accidents.¹⁰⁶

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