ORIGINAL RESEARCH

Evaluation and monitoring the health of media staff using the occupational health management model

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Abstract

Objective: Considering the necessity of creating, maintaining and promoting the health of employees as the main organizational capital, this study was conducted with the aim of comprehensive and complete observation of the health status of employees in individual, occupational and organizational dimensions in order to achieve a comprehensive occupational health management model.

Materials and Methods: This study is an applied, qualitative and survey research in terms of objective, and is a qualitative study of survey and observational studies in terms of method, conducted during the years 2016 to 2018 in 300 workstations in 5 government buildings with sampling and snowball methods and data were collected with field method using technical apparatus and designed forms finalized by focus group discussions.

Results: Creating a health management model resulted in creating a database on the individual health status of employees and their workplace health and creating a management dashboard for instant monitoring of organizational health status. Using this model, it was possible to evaluate and monitor the personal and occupational health of employees at any time.

Conclusion: A managerial approach was achieved while classifying media related jobs by designing this occupational health model that, at each moment a clear, realistic and complete picture of the health status of the community was created and, strategies regarding the health status of the staff in accordance with the health status of the staff were adjusted, implemented and communicated.

Keywords: Prevention; Health record; Health monitoring; Health information management

Introduction

According to WHO, health is the complete physical, psychological and social well-being, not just the absence of illness and disease [1]. The health capital of each individual contributes to economic growth. Investing in human resources increases the knowledge and health of people, thereby increases productivity and economic growth [2]. A healthy person, a healthy community and a healthy life are one of the most important goals of sustainable development. They are at the center of human development. Health has also been considered from the outset as one of the foundations of human development and sustainable development. A person with physical and mental health is more likely to realize his or her talents and prosperity [3]. A health information system is a computer system designed to facilitate the management of medical and medical information to improve the quality of health care (and measure the health of the individual at any moment) [4]. The common goal of health information systems is to integrate health systems to meet customer needs, perform epidemiological research and manage health information, avoid rework, improve quality of care, and reduce costs [5]. A health monitoring information system is considered as an information system that typically carries out the task of managing information, which may include readout, storage, analysis, or selective search of information. The information contained in this information system includes current and human health related information [6].

Implementation of the health monitoring information system consists of four main steps: 1) objectives 2) design 3) implementation and application and 4) evaluation. It should therefore note that the evaluation of the health information system is not a separate phase, but the evaluation stage must continue during the work process [7]. Evaluation means identifying the common importance, value, and position using careful measurement and study [7]. In other words, evaluation is part of the survey that shows whether specific activities have the desired effect. Evaluation is an essential component of the information systems development cycle [8].

Health information systems are software systems that influence local and national laws, both in design and evaluation. Therefore, it's observed that a software is produced somewhere in the world and used universally as elsewhere in the world, but it is not for health information systems and cannot be. For this reason, the evaluation and assessment of health information systems faces various difficulties both for purchasing, leveling and designing [9].

In this study, according to the design of occupational health management model, using health information management system, comprehensive study of workplace environment and physical and mental conditions of employees (using electronic health records) were performed and the health of the media staff was evaluated and monitored.

Materials and Methods

This study is an applied, qualitative and survey research in terms of objective, and is a qualitative study of survey and observational studies in terms of method. The research community includes the staff of the organization's media field regardless of age, gender, work experience, and education, and also without any bias to a particular group of employees. A total of 300 employees (300 workstations) in 5 office buildings were randomly studied.

In this study, observation and measurement of occupational harmful factors are the data collection tools, and also medical information are obtained from the medical records of the employed person. The checklist used in this study was a researcher-made checklist whose validity and reliability have been tested by reference to Ministry of Health laws and guidelines and focus group discussions. The field method was also used for data collection. So that after the initial design of the workplace assessment checklist (called Forms 1 and 2), three health experts (environmental health, occupational health and public health) would refer to the workstations and record and evaluate the values obtained by the Hanger photometer, the Casela Cell sound meter, the Kimmo thermometer, the Kimmo ventilator and the ionizing radiation meter. They have also examined the use and type of chemicals present in the workplace and requested

chemical safety information sheet if available. They also assessed the workplace ergonomic conditions and also the psychosocial risks (through interview) and recorded the information in the relevant checklists. The information needed to complete the building information is also collected and recorded by the person in charge of protecting each building by interviewing and viewing the documentation.

It should be noted that the checklists designed as Form 1 (Building Information) and Form Two (Workstation Information) have been reviewed 5 times and its final design is obtained in consultation with health experts, the civil and facilities engineers. Checklist No. 1 consisted of 42 questions in 27 fields and checklist No. 2 consisted of 19 questions in 11 subjects.

A form has been developed in accordance with the standard employee's medical record form created by the Ministry of Health and Medical Education for staff occupational examinations and a software was also designed on its basis. International standards were also used in designing specifications for electronic health records [10]. This checklist was considered as Form No. 3 with the following sections:

1- Individual characteristics of the employee 2- Occupational records 3- Assessment of occupational harmful factors 4- Personal, family and medical history 5- Examinations 6- Experiments 7- Paraclinic 8- Registration of consultations and referral results 9- Final opinion of occupational medicine specialist / Occupational health related to work

This form was provided to all employees in a system to enter personal information while referring to it and provides self-report on harmful job factors. In the next step, each employee refer to the hospital in accordance with the timetable and subsequent visit to his/her place of work and performed relevant tests. Then he was referred to the occupational medicine physician with a chest exam and x-ray. After examining the individual, the physician followed up with additional counseling and testing to obtain the final result and, the final result was determined in three healthy, unhealthy, and following ways. It is also worth noting that three psychometric tests (including the intelligence test and the MPI personality test and the Millon test) were also

conducted and kept confidential in the employee's file.

The method of data analysis was that the final result of the workplace assessment as well as the final result of the employed person health record was recorded in the system and the health information manager comprehensively evaluates the file and records the final result. The database of all three forms has logical relationship with each other and is related to the employee profile. So, by searching the employee profile, you can access information about his/her workplace and workstation, and also the health record information.

To validate the designed checklists, three teams of 9, a team of health experts, a group of organizational managers, and a group of retirees and veterans who were at least 25 years old used a focus group discussion method. Also, in one trained questioner was present each group to facilitate and modify the thoughts and discussions, thus the three forms were finalized. The final pattern designed in this study is as follows:
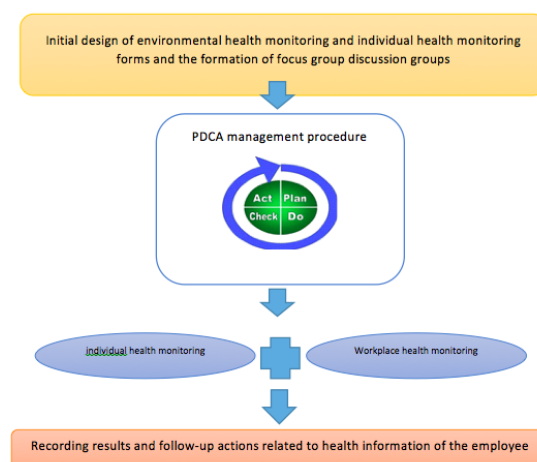
Results

Based on the focus group discussion conducted by the three groups, and regarding the design of workplace assessment forms and its organic relationship with electronic health records forms provided a model for the occupational health management of these employees. The designed Occupational Health Model created a comprehensive monitoring of the individual and occupational health status of employees and found the following findings:

1. Creating a database on the individual health status of employed and retired subjects

By conducting this study, a database on the individual health status of employees (both employed and retired) was obtained using the form 3 (individual health record information) and its effective relationship with forms one and two. The summary of the results of this form is in accordance with table 1:

Table 1 - Summary of the results of form No. 3 including information about the electronic health record of the employed person

Subject	Questions / questions about health status	The Effect of Questions / Questions on Individual health Assessment	Effect of question(s) on rejection of occupational health assessment
1	Demographic information	Has	Does not have
2	Date and stage of examinations	Does not have	Has
3	Job information	Has	Has
4	Height, weight, blood pressure information	Has	Has
5	Job self-expression	Has	Has
6	Physician examination information	Has	Has
7	Test information	Has	Has
8	Optometry information	Has	Has
9	Auditory information	Has	Has
10	Lung Test Information	Has	Has
11	ECG Information	Has	Has
12	Other consultations and examinations	Has	Has
13	Physician Interpretation	Has	Has

The logical and organic relationship of this form with the forms No. 1 and 2, makes it possible to determine the individual health status according to the occupational type and conditions of the individual, and three situations were achieved:

1 - Healthy: If the person is found to be in relative health, according to the level of occupation at the next time intervals, the examinations and inspections will be done and the health file of the subject will be updated.

2 - Unhealthy: If on the basis of tests, examinations and consultations and also according to the workplace conditions, it is found that the person is unhealthy, subsequent follow-up is performed and the health record is updated within a short period of time (depending on the type of job and the relevant conditions and according to the health expert).

3 – Under follow-up: The final result should be recorded in the related software for each individual within two months of starting the health record. If this is not the case for two months after the past (due to the increased number of specialist consultations and examinations, scans and other paraclinical measures to reach a final conclusion), this option should be mentioned in the individual's health record.

2. Creating a database on the health of the workplace

Given that each of the workstations was visited in this study and occupational harmful factors, and also issues related to building and facilities and the workplace safety were examined and evaluated, a comprehensive database was created on the overall health status of the workplace. Also, with the statistical and content analysis of this database, and according to the expert reviews, an overview of the health status of the workplace, its standard being or not, its safety status, etc. was created.

While targeting costs related to building maintenance and work environments, these measures have led to effective measures to improve the quality of workstations and office equipment. The visits leading to the creation of this database also made it difficult for employees to change their work environment and to act independently on the arrangement of the work office without the coordination of the health department. This has enabled the support and construction sector to make any changes to the interior and exterior textures and coatings as well as structural improvements aimed at bringing the current situation closer to standard and sanitary conditions. Also in the field of purchasing items and equipment, the relevant experts were required to purchase office and non-office equipment in accordance with the health status of the workplace and in accordance with the health department's opinion. Summary of the results of forms 1 and 2 have been presented in tables 2 and 3:

Table 2: Summary of results from form No. 1 including information on the workplace building of the employee

Subject	Question(s) about Workplace Building	Effect of question(s) on the evaluation of the health of workplace building	Effect of question(s) on assessing the need for modifications in the workplace building
1	Building name and information	Does not have	Does not have
2	Elevator	Does not have	Has
3	Area	Has	Has
4	Application type	Has	Has
5	Sewage disposal system	Has	Does not have
6	Food supply and distribution system	Does not have	Has
7	Health facilities	Has	Has
8	Inputs and outputs information	Has	Has
9	Roof Building Information	Has	Has
10	Floor information	Does not have	Has
11	Skeleton and structural information	Does not have	Has
12	The overall quality of the building	Has	Has
13	Building Sports Facilities Information	Does not have	Does not have
14	Disease Carrier Information	Has	Has
15	Date of construction and operation	Has	Has
16	Information on the number of floors and rooms	Does not have	Has
17	Heating and cooling facility information	Has	Has
18	Staff Number Information	Does not have	Has
19	Waste Disposal Information System	Has	Does not have
20	Fire Alarm and Fire Information System	Has	Has
21	Ventilation system information	Does not have	Has
22	Facade and interior information	Does not have	Has

Subject	Question(s) about Workplace Building	Effect of question(s) on the evaluation of the health of workplace building	Effect of question(s) on assessing the need for modifications in the workplace building
23	Water supply information	Has	Has
24	Green space information	Does not have	Does not have
25	Inspection Date	Does not have	Has
26	City Health Problems Information	Does not have	Does not have
27	Description	Does not have	Does not have

As shown in table 2, all important factors have been identified from the perspective of employee health, health and safety. As obtained from the table above, the number of questions affecting the diagnosis and determination of the workplace's health or unhealthiness is 13, and there are 20 questions that identify or determine the need for minor corrections at the workstation, this means that the main preference in identifying harmful factors is to remove or modify it, not the overall workplace change.

Table 3 shows the most important harmful occupational factor in the employee's workstation and determines whether or not they affect workplace assessment. This means that 5 harmful occupational factors including biological, ergonomic, chemical, psychosocial and physical harmful factors were measured at the employee workstation and recorded in form No. 2 and, one of the four healthy, unhealthy, healthy with partial modifications, and healthy with overall modifications states were recorded through the evaluation by all three environmental, public and professional experts.

Table 3 - Summary of results from form No. 2 of the information on workstation

Subject	Questions / Questions about Posture of Work	Effect of question(s) on the evaluation of the health of workplace building	Effect of question(s) on assessing the need for partial/overall modifications in the workplace building
1	Building profile - Workstation profile, room position and employee profile	Does not have	Does not have
2	Kind of work	Does not have	Has
3	Light, sound, ventilation, heat, radiation data	Has	Has
4	Information on biological harmful factors	Has	Has
5	Information on ergonomic harmful factors	Has	Has
6	Information on psychosocial harmful factors	Has	Has
7	Information on chemical harmful factors	Has	Has
8	Information about physical harmful factors	Has	Has
9	The most important workstation health problem from an employee perspective	Does not have	Has
10	Visitor expert opinion	Does not have	Does not have
11	Inspection date	Does not have	Does not have

In this table, there are 8 effective questions with partial and general corrections in the workstation, and the number of questions effective in assessing and diagnosing whether the work environment is healthy or unhealthy was 6. So in this area, priority was also given to identifying, eliminating, and modifying job harmful factors rather than changing the overall workstation.

3. Creating a management dashboard for instant monitoring of employees' individual health status and work environment

A management dashboard is created by using this designed model, and based on information obtained from Forms 1, 2, and 3, as well as ongoing and continuous follow-up of health records, and also expert visits and updating of environmental health information, which can monitor their individual and environmental health at any time.

This instant monitoring was very beneficial for short-term and long-term organizational planning in the field of human resources and could play a key role in providing health policy makers with scientific and accurate data collection and reliable analysis.

It is clear that the management of health information derived from this model at one of the organizational levels is one of the most complex and sensitive organizational management and one of the reasons for its complexity is the mass of information that needs to be analyzed and provide an optimal solution proportional with the organization's limited resources. This model helped the analysis of the information while simplifying the organization's health information. The key constituents of a management dashboard include the following table:

Table 4 - Health Information Management Dashboard Information

Subject	Constituents of dashboard	Accessibility level
1	Employee information	Expert - Deputy General Manager - General Manager
2	Health file result information	Deputy General Manager - General Manager
3	Workstation Assessment Information	Expert - Deputy General Manager - General Manager
4	Information on the outcome of the workplace building evaluation	Expert - Deputy General Manager - General Manager
5	Information on Employee Medical Commissions	Deputy General Manager - General Manager
6	Information on employee salaries commissions	Deputy General Manager - General Manager
7	Information on annual and periodic employee evaluations	General Manager
8	Information on corporate incentives and punishments	General Manager

Discussion

Similar studies have not fully focused on all of the factors affecting individual and occupational health, and often focus on some factors and parameters. For example, in the study conducted by Haghdoosti entitled "The Relationship between Mental Health and Job Satisfaction" focused only on the mental health parameter [11]. However, in the current study, all occupational harmful and individual health factors were evaluated. In Magnavita's research, only the analysis of the symptoms of workers' occupational diseases and their

perception of the workplace were examined [12]. Whereas in the present study, emphasis is placed on the prevention of treatment and the observation of symptoms before and after disability.

A study by Rafiee Manesh et al. on the role of occupational examinations in the early detection of occupational diseases focused more on screening plans and staff examinations, and found that most people with hyperlipidemia, hearing-neurological loss and visual acuity decline were unaware of their illness. In this study, the role of pre-employment examinations and periodic examinations in the early recognition of diseases has been mentioned [13]. In the present study, screening examinations were not only objective and individual health was assessed in a comprehensive manner, but similar to this study, it was found that most people are not aware of their diseases mentioned above. This study also confirmed the role of occupational health examinations in the organization, the role of occupational health model, and job examinations at the time of employment, and also periodic examinations of health records in the early diagnosis of the disease.

An efficient information system is needed to make effective and successful decision-making and effective management, because all information which are the basis of decision making have been included in the information system and, the use, storage and retrieving this information depends on the information system that plays a key role in the operation [14]. In designing occupational health model and occupational, individual and organizational assessments, important and effective health information can be derived, and so it created a good information system for understanding the diseases of the target community.

Also, in the discussion of human resource management in the organization, attention to human resources and his/her health plays an important role in increasing the efficiency, effectiveness, productivity, loyalty of the employees to the organization and creating the commitment of the employees to the organization. Today, protecting the health of employees is one of the most influential indicators of human capital productivity [15].

In the media business, the importance of human resources and management of these resources has high importance. A review of the performance of countries that have seen significant growth in the field of media in recent years, it is indicated that most of these countries have achieved this growth mainly through the element of increasing human productivity as capital. The fact is that in today's world and in media-related jobs, human is the main factor of organizational development and, human resources factor is more important than anything else.

Therefore, maintaining and protecting the health of the workforce and maintaining this health, even in the late years of service and retirement, is of particular importance. According to the supreme leadership's instructions stating "prevention and health take precedence over treatment", creating this management model for designing the occupational health status of employees plays a key role to play in ensuring their health and improving their health and, it can be an important step in preventing occupational diseases and their complications.

Conclusion
The purpose of this study was to create a suitable model for the management of occupational health professionals in the field of media by creating a complete and comprehensive electronic file, which derives, collects, and even updates all individual health information from entry to retirement and even death. Also, the information on employee occupational health in the face of occupational harmful factors is also collected and updated by this study. This can be very useful for decision making of relevant organizations and can be an effective step towards moving to a dynamic, healthy, active and sustainable organization.

This model can also help with concepts such as foresight and future research along with monitoring existing indicators. The organization and its needs change rapidly and the needs of the workforce are affected by these changes. The burden of illnesses and the age of employees and other indicators change, thus it should be tailored to the desired future in keeping with the facilities, resources, organizational infrastructure, and human resources status and plan the roadmap to that

end. This pattern greatly addresses our needs in this regard. This model is also useful in expert discussions on absorbing and upgrading human resources and supports the organization in dealing with the shortage or reduction of active and effective human resources.

Researchers' suggestions based on the findings of this study are as follows:

1) Changing the dominant discourse in the area of organizational health from treatment-based to health-based.

2) The use of control levers and incentive and punishment systems to prevent an increase in medical costs in the organization.

3) Developing and promulgating appropriate regulations and guidelines in the field of health and prevention.

4) Make decisions about the health of employees at the top of the organization's hierarchy.

5) Establishing appropriate structure, budget and specific financial facilities in the area of health and prevention of the organization.

Conflict of interest
Authors declare no conflict of interest.

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