

INJURIES AMONG THE HEALTH AND THERAPEUTIC EMPLOYEES IN A GENERAL HOSPITAL IN TEHRAN

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Abstract- The health and therapeutic employees are facing with some particular hazards. The existing insurance system has a lot of different shortcomings. Determination of the frequency and type of accidents in a hospital was the main objective. All accidents were recorded and the study period was divided in to 3 periods. The victims who reported their accident were classified from personality point of view and the accidents of highly reliable employees were analyzed. Although number of needle-stick was relatively high (4.5%), cuts (45.4%) were on top. Youngsters had the highest injury rate. Creation of a unique record keeping system for the country or even for the world was the final conclusion.

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INTRODUCTION

The health and therapeutic employees are one of the largest workforces in Iran. They are, in addition to those hazards which can result in accident with consequences of injuries, facing with some particular and different hazards such as direct contact with different biological fluids, exposing to viruses, microbes, fungi and body tissues. Typical examples of the accidents, with which the health and therapeutic employees involved, are needle stick and splash of cellular fluids, blood, urine, chemicals and pharmaceuticals, on the body. The consequences of these accidents are very peculiar and vary from hepatitis to variety of infectious diseases and cancers. As a matter of fact the existing insurance system and compensation laws on these accidents have a lot of different short comings. This is mainly because the above mentioned occupational illnesses need very long period of time to become detectable.

Perhaps it is for this reason that there is not any reliable recording system and forms for reporting this kind of occupational accidents in our country.

There is another fact that if many research have been performed on the occupational accidents of health and therapeutic employees in the world, such as works done by Gershon et al (1995) (1), Imaz Iglesia et al (1996) (2), and Luthi, JC et al (1998) (3), in Iran there is almost no any research being performed and what do exist are very few and all have concentrated on accidents involving patients rather than the health and therapeutic employees.

By considering these points we thought that careful analysis of the occupational injuries involving the health and therapeutic employees can be a useful tool for promoting their occupational safety and health level.

Our objectives were as follows:

1. Determination of the frequency and type of occupational injuries among the health and therapeutic employees of a general hospital in Tehran.
2. Concentration on the necessary needs from occupational injury prevention point of view compared to other countries' hospitals.

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MATERIALS AND METHODS

This work was an observational descriptive cross-sectional study which was carried out in one of the large general hospitals of Tehran three years ago. An accident reporting form was prepared for those who might get involved with an accident to complete. In addition to some demographic data as age, the following data were included in the form:

- Place of accident (name of ward)
- Immediate cause of accident (Human error, equipment failure, etc)
- Consequence of accident (injuries, death and damages)
- Date of accident (day, hour and shift)
- Type of accident (needle-stick, cut , fall, etc)
- The victim (Physician, nurse, etc)

All employees were trained on how to complete the accident reporting form and two head nurses were allocated to control the completion act. Most of the employees were not keen on reporting accident mainly because they did not trust the management system for any possible harsh reaction which could be shown afterwards. In order to ease this situation we had to have some discussions with them, out of which we got access to some useful points to present to management. The second author was one of the physicians working in the referral hospital and his influence was very helpful on performing this study.

During the last 10 days of the Iranian calendar year (First days of March) the prepared form was completed as a pilot study in order to make the employees familiar with the completion act.

The study period was the first two months of New Year, from which the first 13 days was the national New Year holiday. Taking into account that during this long holiday every one including the health and therapeutic employees as well as patients is willing to be at home, with their family, in all hospitals this fortnight is normally the least crowded period of the year. Therefore the study period was divided into the following three sub periods:

Period 1- Least crowded period: the 13 days New Year holiday.

Period 2- Immediately after holiday period: From 14th of first month till the end of the month: day 31.

Period 3- Normal crowded period: the whole 31 days of second month of the year.

An official premade form was used to evaluate the personality of those who have experienced accident during the study period and reported it. This form was completed by the one who was the immediate responsible person for the accident experienced employee. By scoring this evaluation form we could divide employees into 3 groups of UNRELIABLE, RELIABLE and HIGHLY RELIABLE. This was achieved by comparing the gained score of each person with the highest possible score of personality form (HPS). Those who got less than 40% of HPS were classified in first group and those with score between 40 to 75% of HPS were belonged to second group and the rest whose score was over 75% were marked as highly reliable. It was decided to analyze those accident reports which were submitted by one of the highly reliable employees.

During the study period second author and two head nurses were continuously checking the completion of accident reporting form in different work shifts and hours.

At the end of study period all data were extracted from completed forms and analyzed by aid of SPSS software in computer. All accidents occurred in different shifts (day, evening and night) and different wards (23 wards) during 62 days, i.e. 4278 shifts (62*3*23) and 34224 working hours (4278 * 8), were analyzed. Twenty three wards were taking into account and the following 4 units were discarded due to some internal difficulties:

- Medical laboratories
- Radiology
- Pharmacy
- Physiotherapy

RESULTS

The general hospital chosen for this study is considered as one of the large hospitals in Tehran with 25 wards and 984 employees. The distribution of these employees was as follows:

Physicians	307
Nurses	321
Midwives	47
Nurse Aids (Behyar)	186
<u>Nurse Aid Assistances (Komak Behyar)</u>	<u>123</u>
Total	984

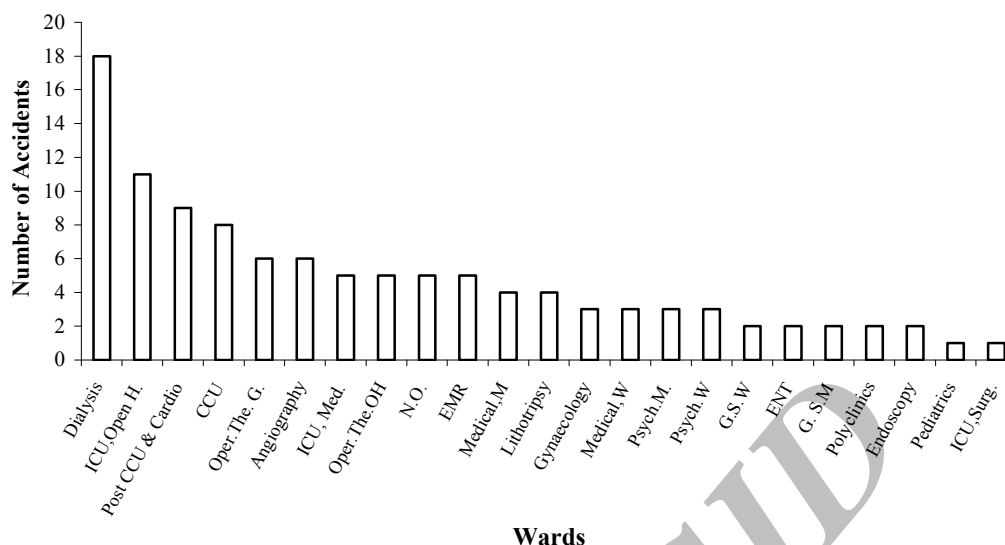


Fig. 1. Number of accidents in different wards during full period of study

Totally 110 accidents were reported by highly reliable employees during the whole study period. Distribution of these accidents between wards is shown in figure 1. It can be seen that dialysis has the highest frequency rate between 23 wards. Only 22 of these accidents have had some consequences for the health and therapeutic employees. Fig. 2 shows that between three periods of study the second one has the worse injury rate and the medical wards are worse than surgery ones. Frequency of injuries in different groups of employees is shown in fig. 3 and injury rate (%) in different age groups is given in figure 4.

In table 1 type of accidents, which have occurred for different groups of employees can be seen. One of the important parts of our work was performing a round table discussion with all of the health and therapeutic employees of hospital. More than 75 percent of employees were submitted their opinion in writing, out of which we could learn a considerable volume of information about existing management system. Our conclusion from this information is given in discussion.

Table 1. Types of Accidents in Different Groups of Employees

Health & Therapeutic Employees	Needle cuts	Stick	Falls	Others
Physicians	1	0	0	2
Nurses	0	4	1	2
Behyaran	0	6	1	2
Komak Baehyaran	1	0	0	1
Midwives	0	0	0	1

Behyar : Nurse Aid, Komak Behyar : Nurse Aid Assistance

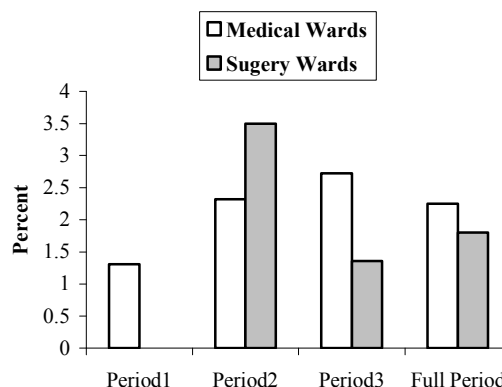


Fig. 2. Injury rate(%) in different periods of study

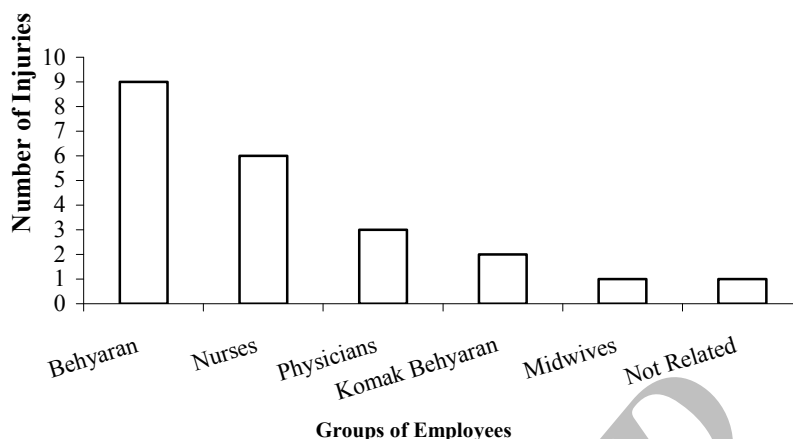


Fig. 3. Frequency of injuries in different groups of employees

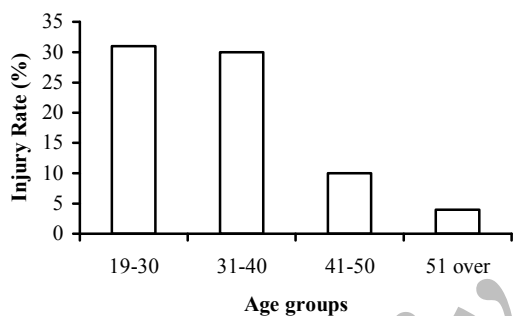


Fig. 4. Injury Rate(%) in Different Age Groups

DISCUSSION

As figure one shows dialysis had the highest and ICU Surgery had the lowest frequency rate. We were unable to indicate the main reasons for the existing trend in figure 1, although the nature of work, size, number of employees, patients, and location of wards could all be behind that. Injury rate was minimum during period one (in medical wards 1.35 % and in surgery wards nil, figure 2) and this was due to national new year holiday period, during which every body including the health and therapeutic employees and patients prefer to be at home with family rather than at work or in hospital. Therefore in this period hospital was mostly dealing with emergency cases. Opposite to period one is period 3 which is part of the rest of the year's normal

crowded period. Injury rate in period 3 was 2.7 % for medical and 1.4 % for surgery wards. Why injury rate in period 2 is much higher than the other two periods, probably because it is the period during which the employees' holiday habit changes sharply to the normal workday habit. Since the volume of work in medical wards is more than that in surgery wards, the injury rate of health and therapeutic employees in the latter is less than the former (Fig. 2). Behyaran (nurse aids) are the most vulnerable group of employees and midwives are the least (Fig. 3). The reason is very obvious that most of the practical works for patient care are usually done by this group. In the AHEPA university hospital in Greece it is deferent and nurses have the highest incidence rate (4). According to surveillance data from the Centers for Disease Control and Prevention, nurses rank first among health care workers who acquire HIV on the job (9) . This might be due to some differences in organizational and management system of these countries. In understudy hospital nurses were mostly supervising and letting works to be done by behyaran. Due to low number of employees in age groups of over 41 injury rate variation in different age groups can be expressed by comparing only the two age groups of 19-30 and 31-40. According to figure 4 younger groups had higher injury rate which is, by considering the length of experience, an obvious point.

Physicians and komak behyaran (nurse aid assistances) are two groups who have had needle-stick accident (Table 1). It can be said that because the injection is not part of normal official tasks of these groups, they are not very experienced and consequently not skillful. In NIOSH publication has written that needle-stick injuries, of which 600000 to 800000 estimated to occur each year in United States, can lead those of health workers who use or may be exposed to needles, to serious or fatal infection (6). Normally injection should be done by nurse or nurse aid. Needle-stick in Greece (4) and Switzerland (3) accounts for 3 percent, but in our hospital it was 4.5 %, which requires more attention. For needle-stick injury reduction there are some useful methods and recommendations in many different publications such as Jagger and Perry (2003) (7), Ellis (2005) (8), and references number 9 and 10. Cuts, which composed 45.4 percent of occupational accidents, were on the top. Behyaran and nurses have experienced all of them; 6 and 4 accidents respectively (Table 1). They also have involved most of the fall accidents. Either they have high load of work during their work hours, or they have not enough training on safety of work and in particular safe operating procedures. According to what we got out of inspecting all existing documents and the results of interview with them, it seems that lack of safety training is the main reason for their accidents.

By considering what practically we did see in the referral hospital on one hand, and looking at the results on the other, and at the same time having very detailed talks and consultation with many of the health work forces, we found three main shortcomings which are as follows:

1- Lack of any system for reporting occupational accidents and then recording and keeping them for long periods. They were mentioning that the one, who had suffered some times ago from hepatitis, never could remember that particular needle-stick from which she has probably got this illness.

2- Lack of self – willingness of health and therapeutic employees to report accidents due to possibly not introducing themselves to the management. This shows the necessity of careful

study of the existing management system in order to find the deficiencies and try to heel them.

3- Many of the accidents are such that their consequences become known only after a long period of time and this causes the majority of health and therapeutic employees to neglect them or not decisively try to report and record them. Therefore training program and the content of training materials must be re-looked and preplanned.

In fact recording accident's detailed data is a vital step for planning the prevention programmes and keeping the recorded data is not just useful for further investigations but also very helpful for safe management of work. This is perhaps the reason for country like England, Wales and Northern Ireland to have 150 reporting centres only for occupational exposure to bloodborne viruses in health care workers (9). Finally we concluded that for promoting safety in our hospitals and for prevention of occupational accidents among health and therapeutic employees, it is necessary to create a unique reporting and recording system for whole country. OSHA has also offered this sort of record keeping for bloodborne pathogens (11). Perhaps this can be done even for the whole world.

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