



## A study on leading Indicators for Occupational Health and Safety Management System in the public and Private Hospitals in Gujarat

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### ABSTRACT

Occupational health deals with all aspects of health and safety in the workplace and has a strong focus on primary prevention of hazards. An Occupational Health and Safety Management System is a fundamental part of an organization's risk management strategy. The implementation of an OHSMS helps an organization to protect its workers and others within its control, helps with legal requirements and facilitate ongoing improvement. Leading indicators are something which can help health personnel to minimize the risk of any unwanted incidence prior to its occurrence. This research study has adopted a qualitative method in order to collect the information by using a close ended questionnaire. The data is collected from the total number of 100 health care workers from the state Gujarat randomly. The researcher selected some statistical techniques to analyse and interpret the collected data. Occupational Health and safety is an important aspect in any health care worker at the place of work. Providing knowledge and training regarding occupational health is a prime necessity for any institution. Lack of training and awareness can cause increase in occupational accidents in the work environment. The presence of Occupational Health and Safety Management System is one of the factors which simulate the employers to arrange training and implementation of safety procedures at workplace. Training of any new equipment or program plays a crucial role in the development and professional growth of the health care workers.

**Keywords:** Occupational health, Leading indicators, Occupational Health and Safety Management System

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### INTRODUCTION

According to World Health Organization "Occupational Health is an area of work in public health to promote and maintain highest degree of physical, mental and social well-being of workers in all occupation [1]. Health workers are all people engaged in work actions whose primary intent is to improve health, including doctors, nurses, midwives, public health professionals, laboratory technicians, health technicians, medical and non-medical technicians, personal care workers, community health workers and traditional medicine practitioners. Health workers are the backbone of any functioning health system and face a range of occupational risks associated with infections, unsafe patient handling, hazardous chemicals, radiation, heat and noise, psychological hazards, violence and harassment, injuries, inadequate provision of safe water, sanitation and hygiene. Globally, improving health, safety and well-being of health workers lowers the cost of occupational harm of estimated up to 2% of health spending and contributes to minimizing patient harm of estimated at up to 12% of health spending. About 54% of health workers in low- and middle-income countries have latent tuberculosis, which is 25 times higher than the general population. Between 44% and 83% of nurses in clinical settings in Africa have chronic lower back pain, compared to 18% among office workers? Globally, 63% of health workers report experiencing any form of violence at the workplace. During the coronavirus disease pandemic, 23% of front-line healthcare workers worldwide suffered depression and anxiety and 39% suffered insomnia. Unsafe working conditions resulting in occupational illness, injuries and absenteeism constitute a significant financial cost for the health sector [2].

### Occupational Health Hazards

Occupational hazards can make a cause a few health problems for workers. These health hazards can fall under one of the six primary hazards categories: physical hazards, chemical hazards, biological hazards, ergonomic hazards and behavioral hazards [1].

**Biological hazards:**

Working in health care, staffs may be exposed to a large number of biological hazards about which they are unaware. If proper controls are not in place, workers may unknowingly be exposed to viruses such as hepatitis B, bacteria and other biological agents. Biological hazards can pose a significant risk to health care workers if not properly controlled.

As controlling measures, ensure to provide training on biosafety and exposure to hazards, use safety engineered equipment as needed, adhere to infection prevention and control practices, know protocols to be followed in the event of exposure to pathogens and report unsafe conditions, concerns and issues to the supervisors. The standard precautions include hand hygiene, use of personal protective equipment, safe injection practice, safe handling of potential contaminated equipment or surface in the patient environment and respiratory hygiene.

**Chemical hazards:**

Health care environments can house a vast array of chemicals. Examples of hazardous chemicals may include pharmaceuticals, cytotoxic drugs, gases, disinfectants and antiseptics may used in laboratories, detergents and cleaners.

To control the hazardous effects, ensure to receive the training on chemicals handling, proper label and store chemicals, use of safety engineered equipment as appropriate, wear appropriate personal protective equipment, know where safety equipment are located, dispose of chemical waste in accordance with host institution procedures and report unsafe conditions, concerns and issues to your supervisor.

**Physical hazards:**

Common physical hazards in health care environments can be wide ranging including heat, noise, vibration, electricity and contact with or struck by an object. Other physical agents such as lasers, X-rays or other forms of radiation used on patients can be harmful to workers if not properly controlled. Awareness of work environment and presence of physical hazards, receive training on process, procedures and on equipment and tools that are to be used, organized and tidy work area, adherence to defined work procedures and rules, appropriate use of personal protective equipment, knowledge of the location of safety equipment, following of proper emergency response and reporting of any unsafe condition can control the effect of physical hazards at workplace.

**Ergonomic hazards:**

Ergonomic hazards can contribute to the development of musculoskeletal disorders, which can develop as a result of overuse of body tissues through awkward, repetitive and forceful movements. One of the goals of ergonomics is to design tasks to achieve optimum performance of a task while minimizing the risk of injury or discomfort. The necessary measures includes practice of good lifting techniques when handling materials, awareness of body posture and position when performing tasks, employ ergonomically designed equipment and tools, adherence to defined work procedures, taking regular breaks when performing tasks that require awkward postures to be sustained for long periods, and report any unsafe conditions, concerns and issues to the supervisor.

**Psychological hazards:**

Violence in the workplace can be a hazard to staff in health care environments. Violence or aggression from patients, visitors, residents, staff and clients take the form of physical, emotional and mental abuse. Most healthcare settings require some sort of shift work which can be very stressful to workers and their families. (Hazards in Health Care Workplaces)

**Occupational Health and Safety Management System**

An Occupational Health and Safety Management System is a fundamental part of an organization's risk management strategy. The implementation of an OHSMS helps an organization to: protect its workers and others within its control, helps with legal requirements and facilitate ongoing improvement.

It is a multidisciplinary approach concerned with safety, health and welfare of people at the workplace. Its objectives are: (I) to maintain an individual's health and working capability, (II) to improvise the working atmosphere that is comfortable for one's safety and (III) to make the culture and environment of the workplace which helps the workers to grow their productivity.

Health and Safety Management System is formed with four components:

1. Safety Policy
2. Safety Risk Management
3. Safety Assurance
4. Safety Promotion

These four components are essential for a systematic approach to achieve an acceptable level of safety at the workplace. Health and Safety Management system is formed of four critical factors which includes intangible, but critical aspect known as safety culture.

**Leading indicators**

Leading indicators are something which can help health personnel to minimize the risk of any unwanted incidence prior to its occurrence. Majority these indicators are proactive and predictive and also input oriented. These are quite tough to measure whereas much easier to influence.

Leading indicators focus on the future health and safety performance with the intent of continuous improvement. They are a signal and monitor of what is being done on an ongoing basis to prevent worker illness and injury.

Common leading indicators in health care sector are:

- Near misses
- Behavioral observations
- Training records
- Safety meetings
- Employee perception surveys
- Preventive maintenance programs
- Hazards identifications and assessments
- Inspections

**MATERIAL AND METHODS**

**Objectives:**

- To understand the leading indicators in occupational health in healthcare workers.
- To assess how the leading indicators apply in health and safety monitoring in health care workers.
- To identify the viewpoint of health care workers regarding the different work conditions at the organization.
- To understand psychology about the workplace hazards in health care providers.

**Research methodology:**

The study has applied qualitative research methodology based on the words, feelings, emotions, sounds and other non-numerical and unquantifiable elements.

**Research design:**

This research study applied exploratory research design to explore work pattern regarding the occupational health and safety in the health care workers.

**Sampling:**

For target population, health care workers are selected working in the health care settings.

The sample size is 100 health care workers.

The sampling method used is probability sampling with the use of random sampling.

**Data collection:**

A survey method is used for data collection.

**Research tool:**

This study applied a structured close-ended questionnaire.

**Research Analysis**

After the data collection, the analysis phase is initiated for the data collected from 100 samples with the use of an close-ended questionnaire. The frequency distribution has been done for the data collected.

**RESULTS AND DISCUSSION**

**Table 1 Frequency distribution of Time pressure and IPR**

Sr. No.	Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Total
1	I face difficulty regarding the functioning of specialized equipment	25	38	16	10	11	100
2	I consider that the time factor is the main cause of mental stress	13	31	20	23	12	100
3	I am stress when I work on a task for a full sleepless night	8	18	18	32	24	100
4	My work environment and culture is always under pressure	6	28	34	23	9	100
5	I am encountering stress when I have to work on several	10	26	24	31	9	100

	hospital sites						
6	I tend to have frequent argument with my superiors	6	8	24	46	16	100
7	I have difficulties with administrative staff	6	16	19	34	25	100
8	I have to perform tasks against my will obeying the superior physician	3	23	31	31	12	100
9	I am not praised or motivated by my superiors	4	14	27	42	13	100
10	My job has a lot of responsibility but I don't have much authority	4	28	22	35	11	100
11	I am poorly appraised	5	21	28	35	11	100
12	I am encountering difficulties in relationship with colleagues	6	10	20	33	31	100

The table 1 displays the frequency percentages for time pressure and IPR as well. For the time pressure the respondents has given an average of response of agreed and neutral for most of the statements, and for the IPR majority of the responses are received as neutral and disagree.

**Table 2 Frequency distribution of Physiochemical exposure**

Sr. No.	Statement	High-level noise	Radiation	High temperature	Low temperature	Handling dangerous substance	Total
1	Are you exposed to any of the following at your workplace?	29	18	16	20	17	100

In the answer related to exposure at workplace, more than one fourth participants are suffering from high level of noise at workplace.

**Table 3 Frequency distribution of Physiological and ergonomic factors**

Sr. No.	Statement	Options	Frequency	Total
1	Is your work-	Physically light	11	100
		Rather light	42	
		To some extent heavy	31	
		Rather heavy	11	
		Heavy	5	
2	Does your work contain lifting, carrying, manual holding up?	Not at all	18	100
		Occasionally	45	
		Every day or almost every day	20	
		Many times daily	13	
		Many times in an hour	4	
3	Do you work with a difficult position of back at work?	Not at all	29	100
		Over 4 hours daily	15	
		1 to 4 hours daily	16	
		Less than 1 hour daily	17	
		Almost every day	11	
		Occasionally	12	
4	Does your work contain hand movements requiring power?	Not at all	27	100
		Over 4 hours daily	11	
		1 to 4 hours daily	12	
		Less than 1 hour daily	21	
		Almost every day	15	
		Occasionally	14	
5	Is your work contains mainly	Sitting	25	100
		Walking	23	
		Standing	52	

The table 3 describes the physiological and ergonomic factors which affects the health care workers at work place. From the data, it can be concluded that the workers are affected by the working conditions and position during work.

**Table 4 Frequency distribution of Psychosocial factors**

Sr. No.	Statement	Options					Total
		Constrained	Unconstrained	Comfortable			
1	What kind of atmosphere do you have in your work?	24	58	18			100
		Very much	Rather much	To some extent	Rather little	Very little	
2	Can you get support and help from your colleagues when needed?	14	48	26	9	3	100
3	Can you get support and help from your superiors when needed?	12	34	29	22	3	100
4	Do you feel stressed at present?	25	38	26	9	2	100
5	How often do you have to hurry to get your work done?	Never	Rather seldom	Every now and then	Rather often	Very often	
		24	35	25	10	6	100
6	Is your work mentally-	Light	Rather light	To some extent heavy	Rather heavy	Heavy	
		15	41	29	11	4	100
7	Is your work	Very variable	Rather variable	Not variable but not monotonous	Rather monotonous	Very monotonous	
		6	30	31	23	10	100
8	Have you been before or are you at present an object of mental violence at work?	No	Yes at present	Yes before not at present			
		73	9	18			100

In the psychosocial factors, the work environment affects the psychological health of the workers. The stress of not getting enough support is also a factor affecting the worker's mental health. In this study, the support from superior is very less. And nearly one forth participants are having monotonous work schedule which makes them less interested in work.

**Table 5 Frequency distribution of Safety practice**

Sr. No.	Statement	Never	Sometimes	Half of the time	Most of the time	Always	Total
1	Unsafe working conditions are identified and improved immediately	0	27	33	23	17	100
2	Hospital maintains excellent housekeeping	1	16	27	36	20	100
3	All the equipment are well maintained	5	13	21	28	33	100
4	Action is taken when safety rules are broken	2	12	29	34	23	100
5	Superiors correct unsafe behaviours when they occur	2	21	28	27	22	100
6	Superiors are well trained for any hazards and safe practice at work place	2	23	26	26	23	100

Table 5 shows the safety practices that should be present at the work place. The hospitals are providing a good safety practices and safe atmosphere at work place to the employees.

**Table 6 Frequency distribution of Occupational Health and Safety Management System**

Sr. No.	Statement	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Total
1	Employees are given adequate OHS training at the time of joining or using new technique	24	31	25	15	5	100
2	OHS training is ongoing and based on a training plan	27	23	24	25	1	100
3	OHS training is planned jointly with workers and employers	25	40	18	15	2	100
4	The hospital supports the training opportunities for employees	6	8	26	53	7	100
5	OHS instruction manuals and procedures are available at work place	21	30	22	22	5	100

The table 6 displays the data regarding OHSMS and the data shows there is a good practice in the hospitals for the occupational health of the employees at the work place like training, procedure manuals and policies are also available at some of the facilities.

The research study finds out that the health care workers have different perception at different level of workplace arrangements and the surrounding situation. The leading indicators for health care workers affecting their occupational health are:

- Work time balance
- Relationship with colleagues and superiors
- Exposure to hazardous situation at working site
- Physical stress
- Psychological stress
- Awareness and training for OHS

These factors are given priority at the workplace for health care providers.

### RECOMMENDATION

The formation of an occupational health and safety committee should be done to deal with the issues regarding occupational health. They should focus on some of the functions which are:

- Audits or inspections of the different departments.
- Safety activities for employees.
- Acquire safety suggestions from the employees.
- Incident investigation

### CONCLUSION

The research study has been conducted with the concern of occupational health and safety of the health care workers. The leading indicators for occupational health are to be find out for preventing the incidence at the workplace due to negligence of the employees and employers as well. There are factors which imply the need for occupational health policy at the health care centres. Leading indicators for occupational health is a preventive measure for any accidents or illness at workplace for employees. Periodical inspection and training can enhance the productivity of health care workers at workplace.

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