

**Summer Training at
Alliz Health, Pune
(April 3 to June 2, 2017)**

**Role of an Online Occupational Health and Safety Platform in
Manufacturing Industries**

**By
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**Under the guidance of
Dr. Anoop Khanna**

**MBA Hospital & Health Management
2016-2018**

The logo for IIHMR University, featuring a stylized 'i' in a square followed by the text 'IIHMR UNIVERSITY' in a serif font.
**Institute of Health Management Research
The IIHMR University, Jaipur
2017**

CERTIFICATE

This is to certify that Mr. Abhinav Mohanty has undergone summer training in AllizHealth, Pune from 3rd April to 2nd June 2017.

The candidate herself/himself completed the project assign to his/her during summer training. Her approach to the project was sincere and proactive. This summer training is in partial fulfillment of the course requirement recommended for the award of MBA in Hospital and Health Management.

I wish him/her success in all her future endeavors.



Col. (Dr.) Ashok Kaushik

Dean (Academic & Student Affair)

The IIHMR University, Jaipur The IIHMR University



Name of the Mentor: Dr. Anoop Khanna

Designation: Professor

The IIHMR University

TO WHOM IT MAY CONCERN

This is to certify that Mr. **ABHINAV MOHANTY**, S/O Mr. Amitava Mohanty, a student of MBA (Hospital and Health Management, 2016-2018), The IIHMR University has completed 02 (Two) months (April 3, 2017 – June 2, 2017) summer training programme at **AllizHealth, Pune**. During the period of his internship programme with us he was found punctual, hardworking and inquisitive.

We wish him every success in life.

For AllizHealth,



COO, AllizHealth and Mentor

Date: June 2nd, 2017



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ACRONYMS/ABBREVIATIONS

DASS21: DEPRESSION, ANXIETY AND STRESS TEST

DGFASLI: THE DIRECTOR GENERAL, FACTORY ADVICE SERVICE & LABOUR
INSTITUTE

EHR: ELECTRONIC HEALTH RECORD

EMR: ELECTRONIC MEDICAL RECORD

GDP: GROSS DOMESTIC PRODUCT

HIT: HEALTH INFORMATION TECHNOLOGY

HRA: HEALTH RISK ASSESSMENT

ILO: INTERNATIONAL LABOR ORGANIZATION

MSD: MUSCULO SKELETAL DISORDERS

OHSM: OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT

OSH: OCCUPATIONAL SAFETY AND HEALTH

SSI: SMALL SCALE INDUSTRIES

INTRODUCTION TO THE ORGANISATION

ABOUT THE COMPANY:

AllizHealth, a preventive care start-up, based out of Pune, India, develops a consumer focused health and wellness platform for early identification, pursuit and management of health risk and conditions. Its platform provides services, such as online booking of health packages, access to fitness and wellness centres, or consulting a doctor for second opinion. The company's platform additionally permits users to store/access/share health information expeditiously, track various health risks and parameters, store digitized health documents, and additionally connect with care givers. Additionally, it offers tools and tracker to keep a tap on users and their family's health. Varied condition management programs, such as diet management and diabetes management plan are available and the platform enables users to order medicines online or can request for any emergency medical services.

Apart from this, one of their major areas of focus is on Occupational Safety and Health for manufacturing industries. Using their Health Risk Assessment and Depression, Anxiety and Stress tools, they aim to assist industries keep a tab on their employees' health standings and monitor them to spot health trends. This allows industries to cut back employee absenteeism, and as a result increase productivity as well as reduce costs on healthcare by preventing occupational and lifestyle related diseases.

LEARNINGS

Preventive health care comprises of steps that are taken for prevention of disease, as opposed to disease treatment. Just like health comprises of various physical and mental states, disease and limited or no ability does the same. They are affected by factors such as environment, disease vectors, genetic predisposition and lifestyle choices. Disease prevention relies on anticipated actions that can be categorized as primal, primary, secondary, and tertiary.

AllizHealth is a start-up that integrates technology with preventive healthcare. Due to the present lifestyle and work related stress, a lot of individuals are at risk of developing lifestyle related diseases such as diabetes, hypertension, depression, etc. Using health trackers such as the Health Risk Assessment (HRA), Heart Age Calculator, Depression-Stress-Anxiety Test (DASS 21) and the Smartphone Addiction Test, individuals can determine their present health status and the risk they are at of acquiring lifestyle related diseases in the future by monitoring and evaluating present health trends.

The web portal also provides the use of a digital health wallet where all the health records of an individual can be stored safely and securely for future use as and when it is needed. These digitised medical records can easily be shared with trusted doctors whenever needed. An automated reminder system integrated in the app also ensures that an individual and their family members do not miss the next visit to a doctor and ensures that medications are taken on time.



Fig.1: Features of the AllizHealth Digital Wallet and EMR system

OCCUPATIONAL HEALTH PLATFORM:

Keeping in mind the risk of occupational hazards, employee illness, absenteeism and the loss of productivity due to such problems, AllizHealth has also developed an occupational health platform which is known as OCCUHEALTH. The major challenges that still plague occupational health and safety programs are their traditional paper and manual based approach. It is difficult to manage and extract useful information. The management seldom has a view of the complete health profile of major health trends of its employees. With the absence of such insights, occupational health and safety programs are frequently robbed of their efficacy and effectiveness. OccuHealth automates the whole method of employee health management. The platform additionally provides an option to companies to completely digitize their employee health check-up reports and records. Record digitization assists the companies in drawing insights from the check-ups, identifying major health trends and find out the change in health trends year after year. At the same time, it also eliminates the possibilities of misplacing any employee health record. OccuHealth platform helps organizations assess the potential health risks of its employees. Using a state-of-the-art Health Assessment solution, companies can assess individual employee's health risks and health areas he/she should be careful about.

SWOT ANALYSIS:

A) STRENGTHS:

- Tried and tested HRA platform in corporate companies
- Knowledge about lifestyle diseases
- Innovative approach to preventive healthcare
- A strong technology team

B) WEAKNESSES:

- Weak referral base when it comes to referral to industries
- All components of occupational health and safety are not covered leading to product limitation

C) OPPORTUNITIES:

- Entry into OSH market in industries
- To become a major player as a preventive healthcare service provider in industries

- To bring in more awareness about OSH and the risks if it is ignored

D) THREATS:

- New entrants
- External factors such as government policies
- Willingness of the government and industries to invest in a technology based OSH platform
- Funding constraints and economic climate

PROJECT REPORT

ROLE OF AN ONLINE OCCUPATIONAL HEALTH AND SAFETY PLATFORM IN MANUFACTURING INDUSTRIES

INTRODUCTION TO OCCUPATIONAL HEALTH AND SAFETY

India is a nation that's developing and it shows demographic options that are alike other developing nations. Increasing population could be a major distressing factor for the government and is considered a big barrier to the growth of economy of the country. Globalization of industries and fast industrial growth within the previous few years have further convoluted the occupational health connected problems.

Census reports are a big source of accurate and reliable information regarding employment. Table 1 shows the status of employment in 2001 according to sex and the area of economic activities. Agriculture gives employment to about 58% of the people in India, hence, being the main occupation.

Table 1. Employment (in millions) in different economic sectors of activities in urban and rural areas

Total	Persons			Agricultura	Household	
Rural	Males	Total workers	Cultivators	Labourers	Industry	Other Workers*
Urban	Females				workers	
Total	Persons	403	128	107	16	151
	Males	275	86	57	8	123
	Females	127	41	50	8	28
Rural	Persons	311	125	103	12	71
	Males	199	84	55	6	55
	Females	111	41	48	6	16
Urban	Persons	92	3	4	5	80
	Males	76	2	3	3	69
	Females	16	1	2	2	11

*: Other workers = Mining and Quarrying, Manufacturing, Processing, Servicing and Repairs, Construction, Trade and Commerce.

Table 2 shows the prevalence of some of the major occupational diseases.

Table 2. Prevalence of some of the occupational lung diseases studies carried by National Institute of Occupational Health

Industry	Morbidity	Prevalence (%)
Slate Pencil ⁵	Silicosis	54.5
Agate Polishing ⁶	"	38
Stone Quarries ⁷	"	21
Potteries ⁸	"	15.2
Stone Crushing ⁹	"	12
Coal Mines ¹⁰ (Underground)	Coal workers' pneumoconiosis	2.84
	Other respiratory morbidities	45.4
Coal Mines ¹⁰ (Open Cast)	Coal workers' pneumoconiosis	2.1
	Other respiratory morbidities	42.2
Asbestos mine & mill ¹¹	Asbestosis	11
Asbestos Textile workers ¹²	"	9
Asbestos cement ¹³	"	3-5
Textile Mills (Blow Room) ¹⁴	Byssinosis	30
Textile Mills (Card Room) ¹⁴	"	38
Jute Mills ^{15, 16}	Byssinosis and other chronic obstructive lung diseases	48.8

OCCUPATIONAL HEALTH PROFILE OF THE WORKERS IN INDIA:

The manufacturing sector contributed 15% to the gross domestic product (GDP) of India in 2014. The launch of 'Make in India' and 'Skill India' initiatives envisages establishment of high-class manufacturing facilities and enhancement of skills.[1] While these initiatives would contribute to increased output of the manufacturing sector, the human capital should also be looked after by improving the occupational health conditions and scenario.

The Constitution of India aims to secure the health and strength of its employees, provide humane working conditions and facilitate the establishment and provision of occupational health services [2]. Yet, the occupational health scenario in the manufacturing sector in India has been relatively ignored and needs more attention. This can attributed to the many number of new industries and new units being added every year [3],[4],[5]. More importantly, if the health of workers who comprise about 10% of our population could be ensured, it would improve our GDP [6]

According to Section 38(e & f) of the Constitution of India, Occupational Safety and Health is a right that belongs to every employee and the Government of India is directed to fabricate and design its policies in such a manner that the health and strength of workers are not abused and that citizens are not forced by economic necessity to enter jobs that are not suited to their age or strength. [13]

The manufacturing sector in India is not only vast but it is also complex. A large number of industries and occupations are involved. The more prominent among these are textile and apparels, leather, paper, chemicals and petrochemicals, rubber, glass, metals, pharmaceuticals, tobacco, food and beverages, computers and electricals, motor vehicles and machinery, mining (coal, ores, petrol and gas, etc.), etc. Different industries predispose workers to a variety of risks of differing severity. In the 270 294 manufacturing units, 4 303 000 workers were employed with men comprising 86.5% of the workforce. The proportions contributed by individual manufacturing industries were: textiles (12.5%), food products (12.3%), metals and their products (10.1%), chemicals (7.9%), metal products (7.7%), motor vehicles (5.7%) and rubber (4.2%). [4],[7]

SSI contributes approximately 40% of the gross industrial value to the Indian economy. It is also expected that SSI's contribution to Indian GDP may touch double digits by 2020. With low investment and high labour absorption in various industries, the emphasis on importance of occupational health is low. [13]

Directorate General Factory Advice Service (DGFASLI) classifies accidents into fatal and total i.e. fatal as well as non-fatal. The incidence of both categories has declined over the years from 65.59 per 1000 persons in 1980 to 2.41 in 2006 and 0.90 in 2011, but the proportion of fatal injuries has increased from 0.2% in 1980 to 5.4% in 2006 and 10% in 2011. Figure 1 depicts the above information.

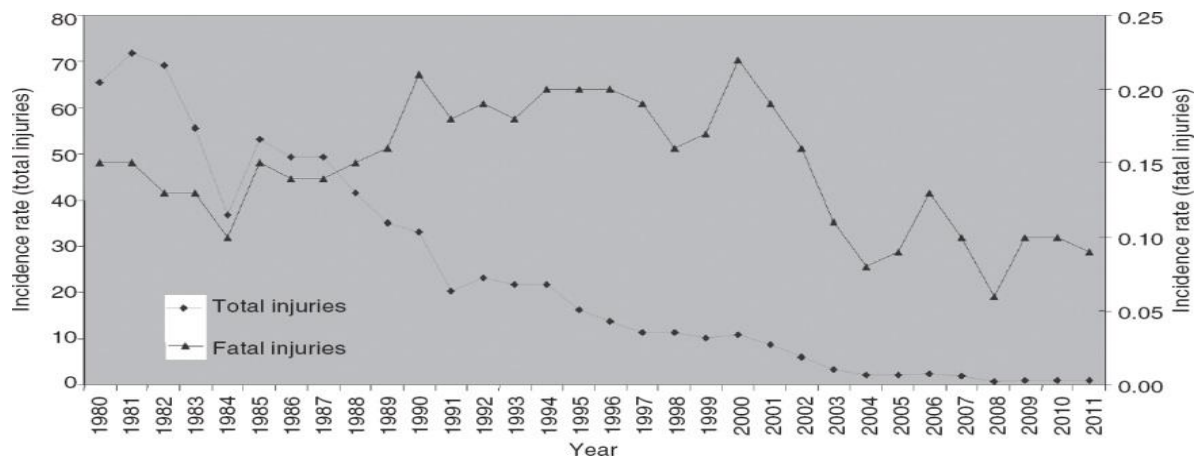


FIGURE 1: Incidence of fatal and non-fatal injuries from 1980-2011

The highest incidence has been reported in the manufacture of transport equipment (5.42/1000/year), with intermediate rates in the textile and related industries (3.57/1000/year), machinery manufacturing (3.26/1000/year), metal and alloy industries (3.16/1000/year) ([Figure 2]). It was 2.64 to 2.79/1000/year within workers involved in the manufacture of metal and metallic products, electricity, gas. The incidence rates were lower (1.63 to 1.97/1000/year) in industries involved in the manufacture of paper, chemicals and non-metallic mineral products. [7]

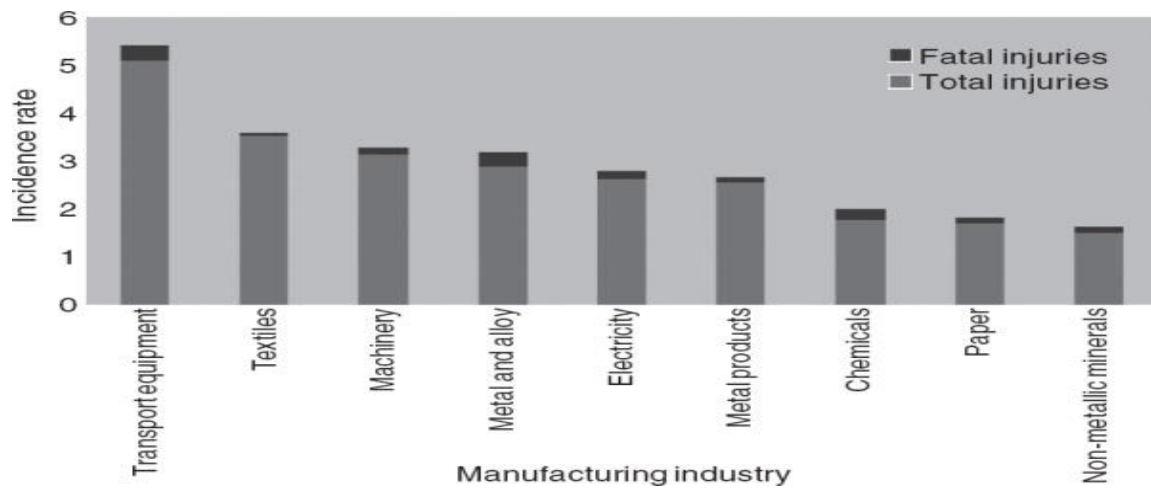


FIGURE 2: Incidence of injuries in different manufacturing industries. Rates are per 1000 employees per year

Women and children employed in manufacturing are likely to face even greater adverse impact from occupational exposures because neither the work functions they perform nor the equipment they use are designed keeping in mind their build and physiology [8]. This is in addition to the lower wages, lesser control over decision-making and the risk of sexual harassment [9],[10]. Tiwari and Saha reported that children engaged in the manufacturing sector work for 6 hours or more per day. The work environment is also poorly ventilated and illuminated, unhygienic and often has respirable dust making it unsafe. [11] Workers from the informal sector form another important vulnerable group but in spite of their higher occupational as well as non-occupational morbidity, healthcare and social security for them is meagre, if not completely absent. [9]

ROLE OF HEALTH INFORMATION TECHNOLOGY IN OCCUPATIONAL HEALTH MANAGEMENT:

Health info technology (HIT) provides support to health info management across processed systems and the safe and secure transaction of health info between consumers, providers, payers, and quality monitors^{12]}

According to a report by the Agency for Healthcare Research and Quality, 2006, widespread and continuous utilization of HIT will:

- Improve health care quality or effectiveness
- Increase health care productivity or efficiency
- Inhibit medical errors and improve health care accuracy
- Decrease health care costs
- Improve and enhance administrative efficiency and health care work processes
- Reduce paperwork and idle work time
- Extend real-time communications of health informatics among health care professionals
- Enhance access to affordable care

RATIONALE

MSD related to work, lower back pain, other health issues result in more absenteeism and loss of precious working time with undesirable effects on relations with labour. This also results in high insurance and compensation costs. There may be more probability of accidents and errors with higher turnover of workers. It also leads to decreased production, poor quality work with high administrative and workforce costs that, in the end, reduces productivity and increases cost to the organisation. For industries that wish to have an edge over their competitors, it is imperative for them to focus more on occupational health where they can cater to the present health needs of their employees and also monitor and keep a check on the long term effects of work related health hazards. Organization can work to develop health interventions that will help create a better quality of life for workers and bring down the financial losses and healthcare costs to them and the economy. The use of health technology can effectively help companies to monitor and predict the health of the employee more efficiently on a real time scenario. An employee's health is important when it comes to reduction of cost to company, improvement in quality, improvement in performance. Various studies and researches have been done where the focus had been kept on occupational health especially ergonomics that had resulted in measurable benefits for the organization.

In the present occupational health scenario, organizations conduct the same set of health check-up for all its employees which is definitely not a cost-effective method. A person's present health risks depend on varied parameters which include his present lifestyle, his family history, and his social and work life. Based on these parameters he should be asked to undergo a certain set of health check-ups. Companies can use health info technology to map the health check-up requirement of each of its employees effectively that has a possibility to result in a lot of cost saving. This will also result in more helpful clinical reports and can help OHS providers to provide better monitoring and consultation.

RESEARCH QUESTION

“What is the role and importance of an online occupational health and safety platform for manufacturing industries in India?”

OBJECTIVES

- To understand the importance of Healthcare Information Technology, Electronic Health Records and Electronic Medical Records
- To assess the importance of a technology based online occupational health and safety platform for preventive healthcare in manufacturing industries in India.
- To assess the benefits of an occupational health and safety platform to employers and employees in manufacturing industries.

METHODOLOGY

The method used is qualitative and deductive. The data that was collected for study was secondary data. Previous articles regarding occupational health and safety in different industries and in the manufacturing industries were reviewed and data was collected from them. Articles pertaining to efficiency and benefits of EHR and EMR systems were also reviewed to understand their importance in various industries and how the integration of EHR/EMR in manufacturing industries in India can benefit the employers and employees.

LITERATURE REVIEW AND FINDINGS

Keywords: occupational health, occupational safety, accident statistics, non-communicable diseases, manufacturing industries, occupational health and safety management, cost to company, economic burden of non-communicable diseases in India, chronic illness, diabetes, cardiovascular disease, depression, financial burden , health expenditure

Guirong Shia et al.,2012 noted that slow and steady efforts are needed to develop and establish a safety culture in an organisation. The organisations and government need to give more importance to OSH management according to XiaohongGuo., 2012. According to AsaEkn et al., 2013, working condition and work situation can influence factors such as reporting and communication of safety issues.

XueqiuHea et al., 2011 say that to maintain a social stability and for development of national economy, work safety is very important for any country. Huang Lin juna, et al., 2013 state that the safety policies and management systems are becoming more and more complex, and those need to be made simple in order to avoid unnecessary confusions and complexities. One of the possible methods of improving safety performance is behaviour-based safety which is found to help in decreasing the accident rates at workplaces. Accident rates are higher for those organisations that have more flexible production technology.

Major lifestyle diseases that have crippled India's productive population are heart ailments, stroke and diabetes and these diseases have been estimated to reduce the country's gross national income by approximately Rs8,40,000 crores by 2015, according to a recent study that was done by PriceWaterhouseCoopers, a consultancy firm.

PWC estimates that productive years lost in India because of deaths from cardiovascular diseases among people aged between 35 and 64 years is one of the highest among all the countries in the world. By 2030, it is expected that the cumulative loss in productive years for India might be approximately 17.9 million years which would be around 940% more than the loss in productive years estimated in the United States of America.

The PriceWaterhouseCooper report which is titled Working Toward Wellness: An Indian Perspective, has noted that chronic diseases are an increasing and expensive threat to Indian companies and their employees. The report states that deaths due to chronic diseases would probably register a steep increase from 3.78 million in 1990 to 7.63 million in 2020, which would account for 66.7% of all deaths

The report also says that the economic cost of chronic diseases in developing and developed countries all over the world is estimated at approximately 3% of the GDP globally.

In the study report, PwC has mentioned that it has carefully gone through the challenges that businesses face as a consequence of the increasing trend of chronic diseases and it noted that approximately 2% of capital spent by the companies on their workforce is lost to disability, absenteeism and reduced productivity because of sick employees who happen to work below their potential owing to chronic diseases. All in all, these indirect costs are more than the direct mediclaim costs incurred by the employers.

The report also estimates the loss of income due to chronic diseases in India with reference to a World Health Organization (WHO) study that was carried out in 2005. The WHO report showed that the loss of income due to lifestyle diseases among the productive population of India was \$8.7 billion. The WHO report shows that by 2020, chronic diseases will be responsible for almost three-quarters of all deaths around the globe, and 71% of the deaths would be due to cardiac diseases, 75% of the deaths would be due to stroke, and 70% of all the deaths would be due to diabetes in developing nations. “On a global basis, 60% of the burden of chronic diseases will occur in developing countries. Indeed, cardiovascular diseases are even now more numerous in India and China than in all the economically developed countries in the world put together,” according to a study by the WHO.

Indian multinationals in the information technology and information technology-enabled organisations have been very important in involving the workplace to promote health behaviour change for the benefit of themselves, their employees and local communities.

As a rapidly growing economy involving high levels of competition and, work related stress is becoming more common at Indian workplaces. This combined with a changing social scenario which plays an important role in personal lives has an impact on the physical, mental and emotional health of the employees at all levels. It has been predicted that by 2025, more than 57% of the population of India will be suffering from diabetes. Cardiovascular disease, diabetes, obesity and stress have been identified as high-risk elements in employee health and wellness that can impact the workforce prominently. [14]

Stress that is caused either due to professional or personal problems and challenges has an impact on both, the Return on Investment – ROI (quantifiable) as well as Value on Investment– VOI (qualitative) of an organization.

The total organizational productivity loss per year approximately adds up to INR 49.67 Cr, 105.48 Cr and 10.5 Cr across IT, Finance, Banking and Travel and Hospitality sectors respectively.

Lack of clarity regarding goals, lack of flexibility, having to work in shifts, and inability to manage personal and professional responsibilities have high impact on absenteeism and result in loss of productivity. [14]

	IT/ITES	FINANCE / BANKING	TRAVEL & HOSPITALITY
A: Total Days Lost due to ppresenteeism & absenteeism per employee per year	5.20	5.30	4.24
B: Productivity Loss in Rupees (Per Employee Per Year)[Salary per day x A]	19,866.97	21,097.38	16,279.50
C: Total Organizational Productivity Loss in Rupees (Per Employee Per Year) [B/payroll % turnover]	49,667.43	210,973.75	52,514.50
D: No. of respondents	678	804	675
E: Organizational Productivity Loss for the sample set per year in INR Cr [Cx D]	3.37	16.96	3.54
F: Average Employee base in each organization per sector	10000	5000	2000
G: Organizational Productivity loss per year in INR Cr [Fx C]	49.67	105.48	10.5

TABLE 3: Calculation of loss of productivity due to workplace stress [14]

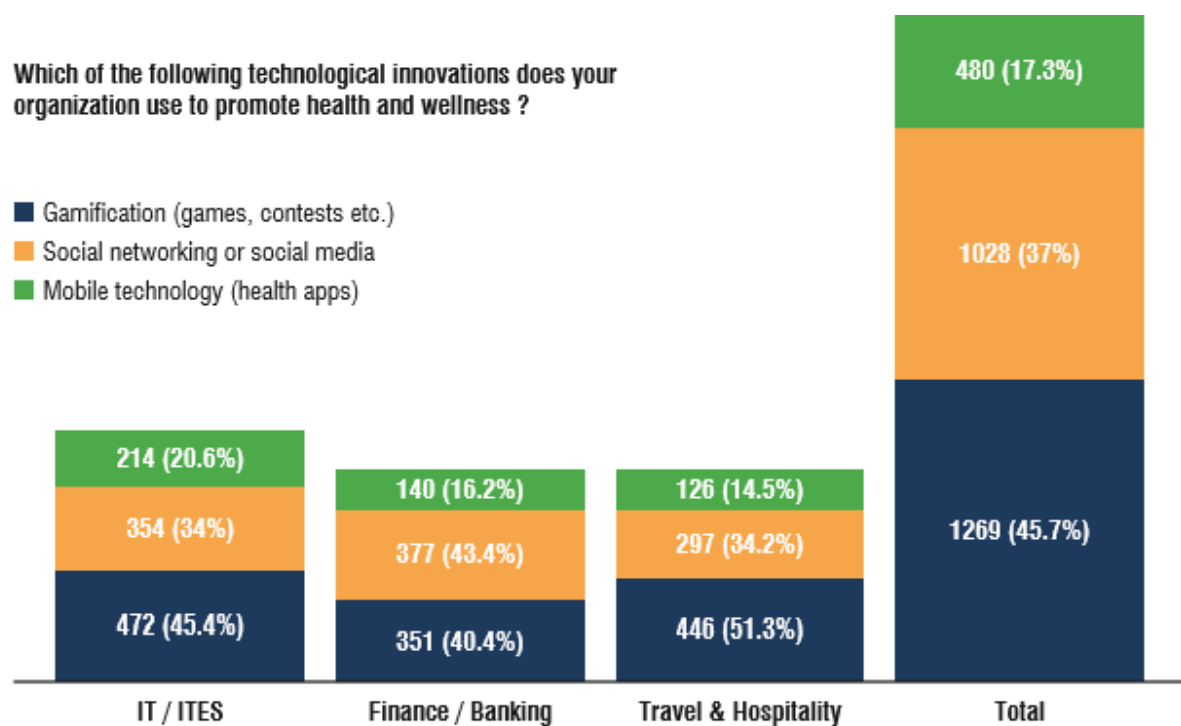


FIGURE 3: Usage of technological innovations by organizations to promote health & wellness [14]

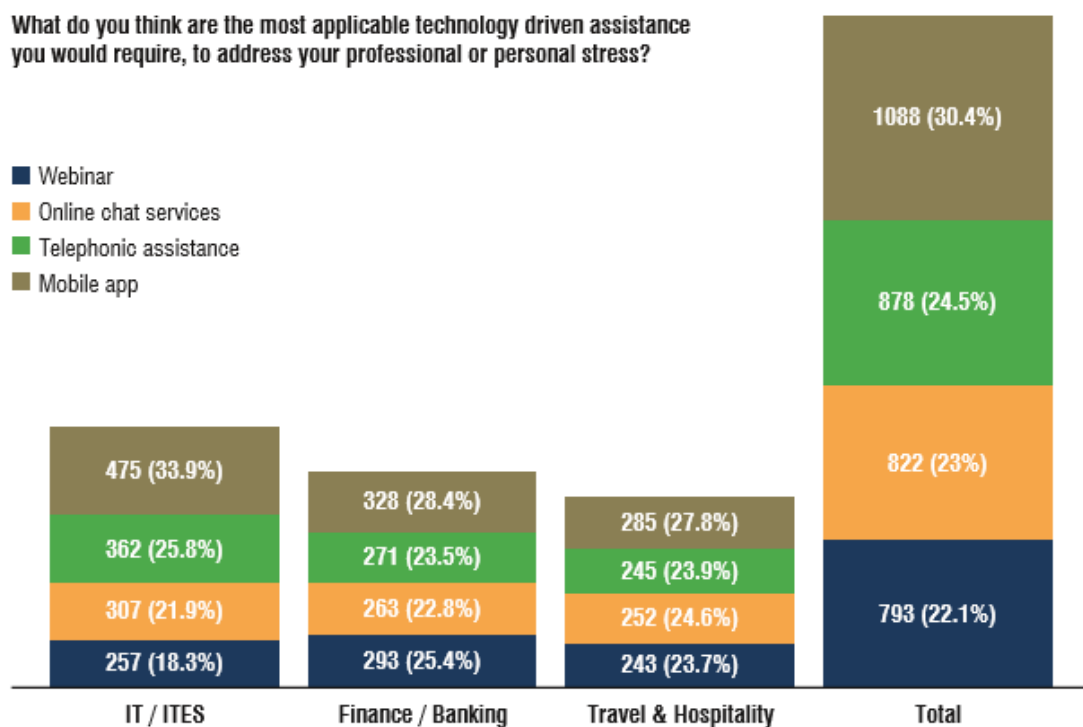


FIGURE 4: Most applicable technology driven assistance to address stress at individual level [14]

Answers to the questions in Figures 3 and 4 had been collected from a total of 2157 respondents from 12 organisations. The data indicates that HIT and mobile health apps play a very important role to engage employees in health and wellness especially to tackle stress.

IMPLICATIONS OF OCCUPATIONAL HAZARDS:

The Towers Watson's 2015 Asia Pacific benefit trends survey identified that increasing health cost is finally making Indian companies to expand their view on employee's health and wellness. The survey indicated that 42 % of Indian employers believe that improving employee's health is one of the top objectives of their profitability strategy.

Health risk assessments are most valued though less than 50% of Indian employers offer such assessments currently.

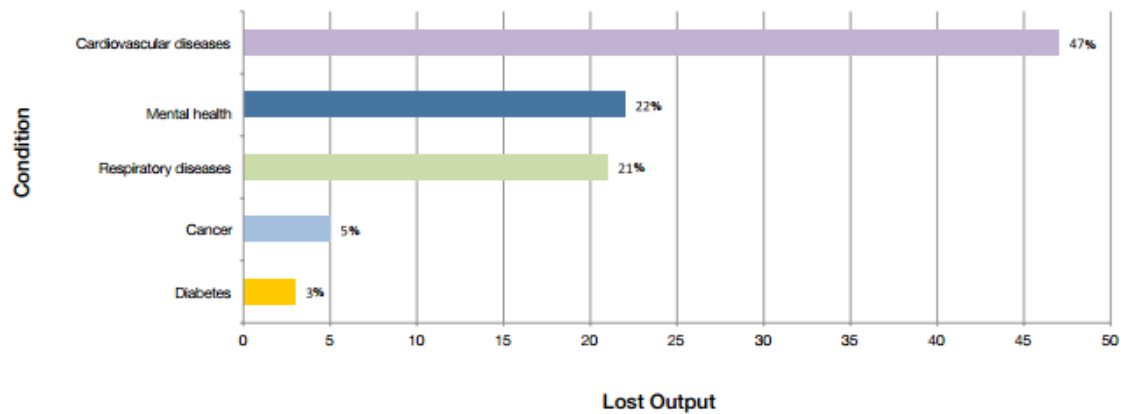


FIGURE 5: Contribution of each disease to lost economic output for India,2012-2030

Source: http://www.who.int/choice/publications/Chronic_diseaseIndia.pdf

CURRENT PROBLEMS IN OCCUPATIONAL SAFETY AND HEALTH IN INDIA

The occupational safety and health (OSH) state of affairs in India is complex. The growth and progress go hand in hand with varied challenges that include:

- An enormous workforce in unorganised sectors
- Availability of low cost labour
- Paltry public disbursement on health
- Inadequate implementation of existing legislation
- Lack of reliable OSH information
- Paucity of OSH professionals
- Apathy of stakeholders
- Infrastructure issues

EMPLOYEE HEALTH RECORD MANAGEMENT- CHALLENGES:

- Possibility of damage to paper based records
- Once damaged, the employee health records cannot be retrieved
- Storage of paper based data requires a lot of space
- Different folders for different groups of employees makes it a complicated process
- Manual process of maintaining employee health records can be expensive, requiring more manpower as well as raw materials
- Paper medical records are usually difficult to understand due to unreadable writing. Important information is lost or interpreted in a wrong way.

[15]

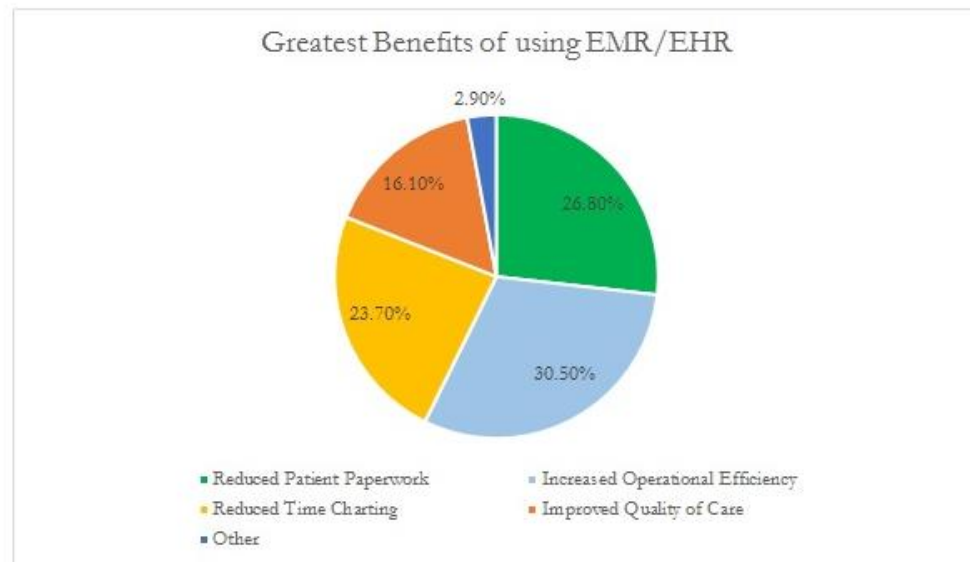
ROLE OF AN ONLINE OHS PLATFORM:

An online OHS platform which has the elements of an EHR/EMR incorporated into it eliminates a lot of problems that are faced during maintaining employee health records manually. One of the biggest benefits of using an online OHS platform is that it automates the entire process of employee health management. The platform also provides an option to organisations to completely digitise the employee health check-up reports. This helps the organisations to identify major health trends at present as well as year after year. It also enables organisations to identify individual employee's health risks and health areas that need to be addressed. This helps organisations to ensure reduced absenteeism and thereby reduce their cost on employee healthcare and also reduce loss of productivity.

Online OHS platforms also eliminate the possibility of losing or misplacing health records as all the collected data is stored on a cloud and can be retrieved any time as and when required. Such a platform also saves time as it eliminates the cumbersome process of pen and paper entries of each employee's health data. Digitising all the health data means that the need for physical storage space is also eliminated. The problems of illegible handwriting and misinterpretation of records are taken care of as electronic records are easy to read. Incorporation of HRA into the platform helps employees understand their health trends and

risks and this acts as a cue to action. Connecting them to medical professionals on the platform paves way for the employees to seek preventive healthcare counselling.

The pie-chart below accurately captures some of the benefits of EHR



Source: www.ehrfunding.com

.FIGURE 6: Benefits of Electronic Health Record/Electronic Medical Record Systems

LIMITATIONS OF THE OCCUPATIONAL HEALTH AND SAFETY PLATFORM AT ALLIZHEALTH:

The occupational health and safety platform has been recently developed and it is at a very early stage. It is yet to be introduced into manufacturing industries and the impact it can have is yet to be determined.

Compared to occupational health and safety platforms that are used globally, there are some features that this platform lacks.

- DASS 21: The DASS-21 is a set of three self-report scales designed to measure the emotional states of depression, anxiety and stress. The DASS was constructed not only as another set of scales to measure conventionally defined emotional states, but also to extend the process of defining, understanding, and measuring the clinically significant emotional states usually described as depression, anxiety and stress. In the DASS 21 there are 7 items per scale.

- **PRE-PLACEMENT HEALTH ASSESSMENT:** A pre-placement health assessment is undertaken by an occupational health service at the request of an employer as part of the risk assessment process and only after a job offer has been made. The pre-placement assessment can consist of the completion of a health questionnaire asking individuals about health issues relevant to the risks presented by a particular job, discussion regarding any health matters, consideration of any health checks required as part of an on-going health monitoring programme required for the job such as a breathing health check if exposed to respiratory hazards, assessment of fitness and medical suitability for the role made by an occupational health service.
- **FORM 7:** The Form 7 is a health register where all the health related data of employees are maintained. As of now, the Form 7 comes as a hard copy that needs to be filled manually making the process long and cumbersome.

RECOMMENDATIONS

Based on the observed limitations of the OSH platform, the following suggestions are recommended to the organisation:

- 1) It is essential to incorporate the DASS 21 into the OSH platform because depression, anxiety and stress are common problems that are seen among employees today due to the high levels of pressure at work and an inability to maintain a work-personal life balance. High levels of depression, anxiety and stress lead to employees quitting their jobs or underperforming resulting in loss of productivity of the organisation and loss of manpower too. Addressing these issues and referral of the concerned employee to a psychologist after the DASS 21 can help employers retain good employees and maintain or increase their productivity.
- 2) The pre-placement health assessment ensure that all new employees are medically fit to fulfil the duties and responsibilities of the job, and consider adjustments that could be made to assist the person in the role; assess whether the job may adversely affect the new employee's health, and whether any extra precautions are needed and provide a record of health information as a starting point for comparison before work begins

such as a hearing test on an employee before beginning work in a noise hazard area to assess their baseline level of hearing. The pre-placement assessment also offers the opportunity for new staff to understand their role more fully and be made aware of necessary precautions, receive explanations regarding when personal protective equipment is needed, and how it is to be worn and be introduced to the overall philosophy of health and safety in the organisation.

- 3) Making the generation of Form 7 available on the online portal will make this process much simplified for industries as the whole process of manual entry for the health details for employees shall be eliminated. The existing HRA tool already captures all the health data for every employee and stores it online. That data can be exported to the online Form 7 without the hassles of manual entry. This shall save time, effort, manpower as well as costs.

CONCLUSION

India has a large and complex manufacturing sector but with meagre occupational health services. Few studies have reported on occupational health hazards of workers engaged in manufacturing, and not all types of industries have been studied. While a gradual decrease in the incidence of accidents has been reported, the proportion of fatalities has increased. Though 44 legislations and programmes related to occupational health and safety of workers are in place, many of their provisions are left un-implemented. There is a major shortfall in manpower needed to assess and address OHS of workers. The vast majority of workers from the manufacturing sector are outside the purview of even the existing legislations/programmes. If India is to make its presence felt in manufacturing in a sustainable way, it can ill-afford to be negligent of the occupational health and safety issues of workers engaged in manufacturing.

Based on the secondary data obtained and the literature review, it is also evident that EHR/EMR and HIT play a major role when it comes to occupational health and safety. With the health records of employees digitised, safety and security of the records are ensured. Organisations save costs by reducing manpower involved in maintaining manual health records, by saving space for storage of records, by ensuring less loss of man days due to hazards and illnesses and ensuring increased productivity. Incorporation of an online occupational health platform in manufacturing industries can be a major factor for improving

the occupational health and safety scenario in India. This, in turn, will affect the economy of the country in a positive way.

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