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Common Health Problems of Workers in Selected Press Industries of Dhaka City



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ABSTRACT

Workers in the press industries in third-world countries like Bangladesh are predisposed to developing various work-related physical problems and medical conditions. The present study was carried out to explore the common types of diseases and common symptoms that may prevail among the press workers of Bangladesh. This was an exploratory study undertaken among the workers from 40 press industries of Dhaka city. The press industries were selected following purposive sampling method. Informed verbal consent was obtained from the respondents prior to data collection. In this cross-sectional study, a structured questionnaire was used to interview 250 workers for identifying the common medical and health-related problems and their management. After collecting, the data were checked and analyzed with the help of Microsoft Excel 2013. Most of the common diseases and symptoms prevailing among the workers were related to the skin as well as gastrointestinal, respiratory, skeleto-muscular and circulatory systems. The workers were susceptible to occupational physical injuries that resulted from various sources. The chief causes of such injuries included lack of proper safety training and availability of protective measures. The study recommends some important measures to be taken to impose strict regulations to minimize the burden of the work-related physical injuries and diseases.

INTRODUCTION

Printing is one of the largest manufacturing industries in Bangladesh. The country has more than 7500 printing press and the majority of them are in Dhaka [1]. The industry encompasses publishers of newspapers, magazines, and books to smaller companies printing brochures, cards, calendars, etc. as well as various advertisements, employing a huge number of the population. Printing on textile, plastic, ceramic and metal surfaces are also common.

Printing is a chemically intensive industry with its workers being generally exposed to many hazardous chemicals which might lead to various health issues. Chemical hazards, the most important ones, come from the following: pre-press chemicals, inks, fountain solutions, cleaning solvents and adhesives and glues. Adverse health effects related to exposure to organic solvents through inhalation and skin contact in the workplace include degreasing of the skin leading to dermatitis, irritation or sensitization of the skin and respiratory tract. Long-term health effects may cause damage to internal organs such as liver, kidneys, and lungs, etc. after absorption into the body. Organic solvents may also cause central nervous system depression with such effects as drowsiness, in-coordination, inattention and impaired balance. The risk of fire is high as the printing industry uses huge amounts of flammable solvents and combustible materials (paper, fabric, plastics) [2]. In all cases, users should enquire the supplier about the detailed hazard information and user safety precautions of their products [3].

Several studies have been conducted on press workers in different countries around the world like UK, Norway, Denmark, Ghana etc. [4-7]. To our knowledge, no significant work has been carried out in our country regarding this topic. Therefore, the present study was designed to investigate the disease pattern and their management among the press workers. This was an exploratory study to identify the common types of diseases and common symptoms that are usually prevailing among the press workers and their management per se. The study also aimed at finding out potential factors that might play crucial roles in the management of various diseases suffered by the press workers.

METHODS

This was a cross-sectional survey-based study conducted prospectively for over eight months (January 2015 to October 2015) in 40 presses from different areas inside Dhaka city. A total number of 250 press workers were interviewed with a predesigned questionnaire in order to

assess the associated disease conditions and factors that influence workers of the selected printing houses. The questionnaire was specially designed to collect the background demographic data and the detailed exposure information and was written in simple English in order to avoid unnecessary semantic misunderstandings. Extra space was allowed after some questions for the participants' comments; and in most cases, these were used as qualifying remarks, which aided considerably in giving answers to specific questions and in providing additional information, which assisted the interviewers in drawing up conclusions.

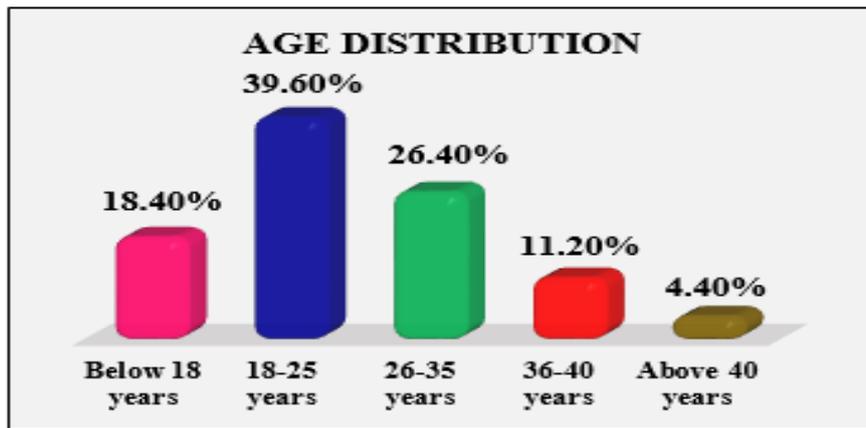
Informed verbal consent was obtained from the eligible participants before they were interviewed and participants who agreed to join the study provided the required information for the studies. The objective of the study was well explained to the respondents and it was ensured to them that their identity would not be disclosed. The study participants were selected by employing a convenience sampling method. After collecting, the data were checked and analyzed with the help of Microsoft Excel 2013.

RESULTS

Demographic characteristics of the press workers

Among the selected workers (n = 250), approximately 40% were in the age group of 18 to 25 years, whereas, 27% of the workers were within the range of 26 to 35 years. However, a significant portion (18.4%) was below 18 years of age while only 4% workers were above 40 years of age (Figure 1A). Surprisingly, all the workers (100%) were male (Figure 1B) and this indicates that press industries, at least in Dhaka city, are male-dominated. Among the workers, 39.20% completed their education up to the secondary (S.S.C) level whereas 37.20% workers only completed their primary education. Approximately 17% workers did not have any kind of institutional education. Only 5.60% workers completed the higher secondary (H.S.C.) level and only 1.20% continued their studies beyond this (Figure 1B).

A.



B.

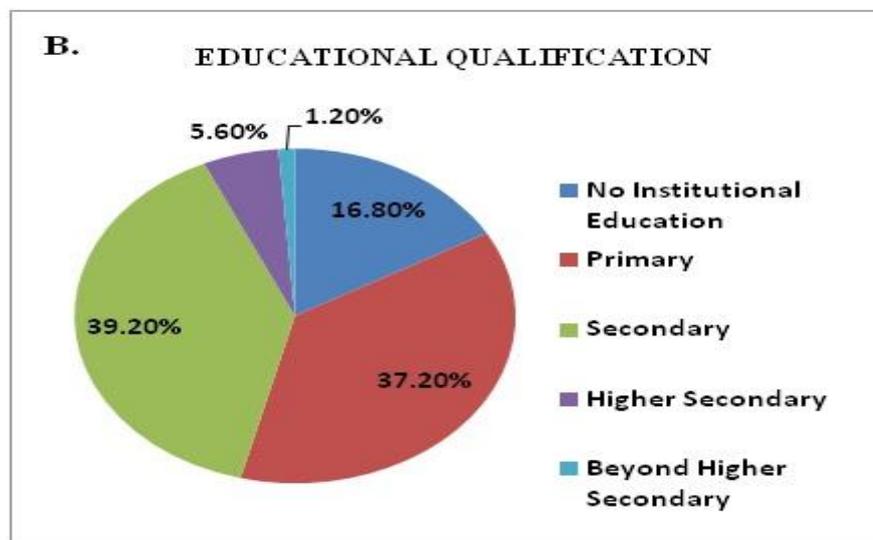


Figure 1: Demographic features of the press workers.

A. Bar graph showing age distribution of the press workers and B. Pie chart showing educational qualification of the workers.

Working department and work experience of the participants

The respondents of the present study, as mentioned above, comprised a heterogeneous group of press workers. Majority of the workers (63.2%) were directly exposed in the printing areas, whereas others were working in finishing (26%) and pre-press (10.8%) areas (Table 1). Most of the workers (36%) had a considerable working experience ranging from 6 to 10 years. Although rarest, only 1.20% workers were found to be working for over 20 years (Table 1). It was seen that, among 250 workers, the majority (74.40%) of the workers worked for 8 to 12 hours every day. A good proportion of workers (23.20%) worked for >12 hours,

while only a few of them (2.40%) worked for <8 hours (Table 1). Altogether, 89% of the workers worked overtime and beyond their daily working hours and among those working extra hours, 60% worked overtime for more than 4 days/week (Table 1).

Table 1: Work-related features and working experience among the press workers

Features	Categories	No. of workers (%)
A. Working Department	Pre-press	11%
	Printing	63%
	Finishing	26%
B. Working Experience	< 1 year	5%
	1-3 years	14%
	3-5 years	25%
	6-10 years	36%
	11-20 years	18%
	> 20 years	1%
C. Duration of Work	Below 8 hours	2%
	8-12 hours	74%
	Above 12 hours	23%
D. Overtime	Yes	89%
	No	11%
E. The frequency of overtime/week	Once a week	5%
	2-3 days	35%
	> 4 days	60%

Major types of diseases and associated symptoms

The common types of diseases suffered by the press workers and the major symptoms as reported by them during the surveying are outlined in Table 2. About 46% of the workers were suffering from various diseases. It was observed that a good proportion of the workers (>27%) suffered from gastritis. Hypertension, cold (both>16%) and skin diseases (~16%) were the other three major disease types that prevailed among the workers. 27.83% were suffering from other kinds of diseases which included joint pain, inflammation in the mouth, migraine, hypercholesterolemia, UTI etc. (Table 2).

Table 2: Major types of diseases and associated symptoms

A. Suffering Diseases	Percentage
Yes	46%
No	54%
B. Types of Diseases	
Hypertension	16.52%
Skin Disease	15.65%
Allergy	0.87%
Diabetes	5.22%
Liver Problem	3.48%
Kidney Problem	2.61%
Cold	16.52%
Fever	13.91%
A headache	2.61%
Gastritis	21.73%
Peptic Ulcer	5.22%
Arthritis	7.83%
Others	27.83%

The major skin related problems prevailing among the workers included itching of the skin (36.8%), skin irritation (25.2%), dry skin (13.6%), skin rash (10.4%), skin inflammation (4.8%), etc. (Figure 2). Other common symptoms included eye irritation (32.80%), coughing (30.40%), joint pains (28%), fatigue (feeling very tired) (24.40%). Among the minor symptoms, abdominal pain (12.80%), back pain (12.80%), difficulty in breathing (6.80%), shortness of breath (4.80%), blood in the urine (1.20%) etc. were mentioned (Figure 2).

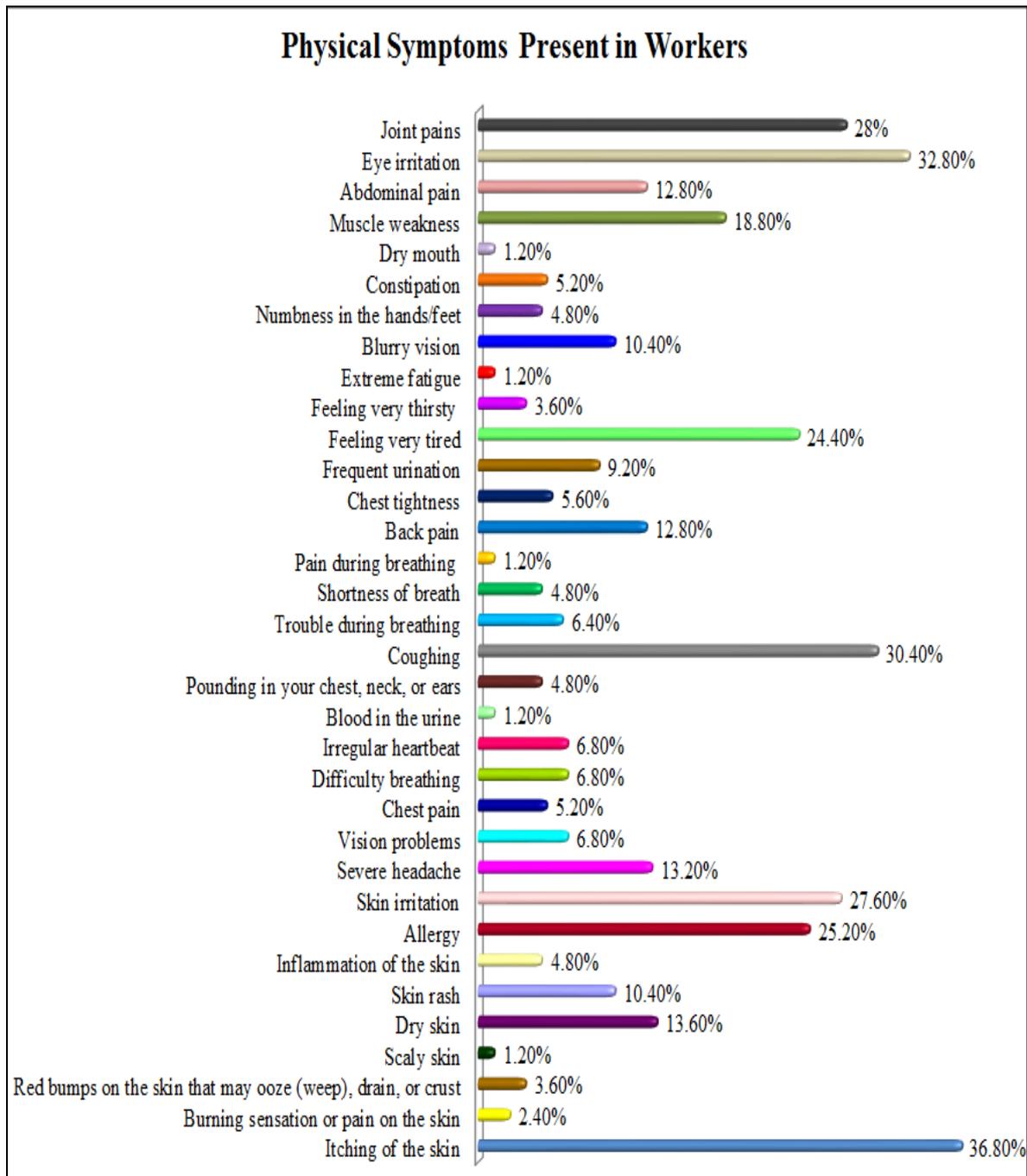


Figure 2: Physical symptoms present among the workers.

Availability of health facilities

The health facilities provided to the workers begged description and were not satisfactory at all. In total, 72% of the 250 workers said that there was no health professional available in the press, although 16% reported that there was a health professional while 12% of them did not even know whether any health professional was present in their press or not (Table 3). There was even no first aid kit available in the press as reported by 59.20% of the workers.

However, 25.20% said they had first aid kit in their press and 15.60% did not know anything about it (Table 3).

Table 3: Availability of health facilities

A. Health Professional	Percentage
Yes	16%
No	72%
Don't Know	12%

B. First Aid Facility	Percentage
Yes	25.20%
No	59.20%
Don't Know	15.60%

Management of diseases and factors influencing decisions of the workers regarding medical check-up

Less than one-third (~31%) of the workers said that they used to take medications according to their need or based on their prevailing medical conditions or symptoms (Table 4). Interestingly, one-third (33%) of the workers did not pay any regular visit to a healthcare professional. Those (67%) who went for any health check-up or who sought for medical help reported medical illness (~99%) and occupational injuries (>5%) as two main reasons for their visit to the doctors (Table 4). When the workers were asked about their last visit to the doctors, more than 30% said they forgot about it while 41% said their last visit was a year ago (Table 4). Most of the workers (41%) did not feel any necessity for regular health check-up thinking that they did not have any major disease (~48%) or for the financial problem (~45%). The self-medication practice prevailing among the workers (>15%) was another cause that kept them from regular health check-up (Table 4).

Table 4: Management of health problems by workers

A. Medication Intake	Percentage
Yes	69.20%
No	30.80%
B. Visit Health Care Professionals	
Yes	67%
No	33%
C. Reason for Visiting Health Care Professionals	
Medical illness	98.81%
Occupational injuries	5.36%
D. Last Visit to Health Care Professionals	
A few months ago	28%
A year ago	41%
Can't remember	31%
E. Feeling the Necessity of Regular Health Check-up	
Yes	30%
No	41%
Maybe	29%
F. Reasons for Not Feeling Necessity of Regular Health Check-up	
No major disease	47.52%
Self-medication	15.84%
Financial problem	44.55%
Others	4.95%

Physical injuries suffered by the workers and their causes

Use of safety protective measures and training on safe performance of tasks were absolutely lacking among the workers and these are the likely cause of physical injuries experienced by most of the workers. Almost one-third (31%) reported during the survey that they had experienced physical injuries at work. Among the various causes of injuries were sharp edge injuries (approximately 49%) and injuries resulting from contacts with moving parts (approximately 35%). Other minor causes of physical injuries were a roller in running nip (3.84%), entanglement (7.69%), slipping on the floor (6.41%), falling from a height (3.85%), and some other unspecified (7.69%) causes (Table 5).

Table 5: Workplace safety measures and incidence of injuries

A. Use of Safety Protective Measures by the Workers	
Yes	0%
No	100%
B. Training on Safe Performance of Tasks by the Workers	
Yes	0%
No	100%
C. Injury suffered	
	Percentage
Yes	31%
No	69%
D. Reasons for the injury	
Roller in running nip	3.84%
Contact with moving parts	34.84%
Entanglement	7.69%
Sharp edge	39.74%
Slipping on the floor	6.41%
Falling from a height	3.85%
Others	7.69%

DISCUSSION

Press industry, despite being an inextricable part of a society, is still underdeveloped in Bangladesh. This industry is still developing and is yet to reach perfection, and therefore has various flaws. Among these, negligence regarding the health and safety issues of the press workers is of prime concern. Work-related physical and accidental injuries of the workers are very common but less studied. The main objective of this study was to identify the major types of diseases and physical symptoms suffered by the press workers, management of these health conditions and factors affecting treatment decisions by the workers that might have possible impacts on the health and well-being of the workers.

The results obtained from this study showed that presently press industries in Dhaka city are mainly male dominated. In some other countries, however, female workers are also working in the press. In some countries, the representation from the female is quite significant. For example, female workers constituted 37% of the press workers in Ghana, as reported by Agubenorku et al. [4].

In the present study, 37.20% workers had their primary education and 39.20% workers completed their study up to S.S.C while 16.80% did not have any kind of institutional education. Since 58% of the workers were also within 25 years of age, this indicates that the

workers most likely started working at an early age. However, the research of Agubenorku et al. [4] conducted in Ghana, showed that almost all the workers (99%) in the press industry had some form of formal education, of whom 32.5% were vocational training school dropouts and another 35% had Senior High School qualification, equivalent to the H.S.C in Bangladesh. Here the number of workers with only Junior School qualification was at a minimum of 5.5%. After joining the press, most workers start as an assistant in the printing department, where they usually help the senior operators. In this study, a highest portion (63%) of workers was found in the printing department. Both Agbenorku et al [4] and Livesley et al [6] had reported similar trends where the percentage of workers in printing department was 40% and 46%, respectively. After several years, the workers generally switch their jobs and move to another sector. Probably due to this reason, 35.6% of the workers had work experience of 6 to 10 years.

Overtime is a common occurrence in this industry. Our data demonstrate that almost 89% of the workers had to do overtime and among them, around 60% of the workers worked overtime for more than 4 days in a week, which eventually might lead to serious stress and different physical problems. Handling and operating heavy-duty and faulty or older machines might be the likely cause of physical injuries although this needs to be confirmed by a more detailed investigative study.

The main concern of this study was to find the health conditions and the disease status of the workers working in the press. Workers in the printing industry suffer from severe diseases such as various types of cancers [7], peripheral neuropathy [8], etc. In a study conducted in Ghana in 2010, the three most common disease conditions reported were allergic dermatitis (58.5%), asthma (13.0%) and hypertension (13.0%) [5]. In the present study, it was found that 46% of the workers were suffering from different kinds of diseases. Gastritis had been the most common disease (21.73%) found in the workers. High blood pressure (BP) or hypertension (16.52%), different types of skin diseases (15.65%) and cold (16.52%) were the other common medical conditions prevailing among the workers. Work-related physical stress may be the reason for the high BP, whereas occupational industrial exposures to dust and other chemical compounds from the press might be responsible for the skin diseases suffered by the workers. However, a more detailed study addressing the reasons why these medical conditions are occurring among the press workers is warranted before any conclusions are made.

If the symptoms from the result of this study are examined, it can be seen that skin related symptoms are quite common among the workers in the printing department. Printing department is where the workers is exposed to different types of chemicals including potential skin irritants i.e. alcohols, alkalis, greases, waxes, and inks; and contact allergens such as dyes, formaldehyde, etc [6]. According to the study conducted by Agbenorku et al [4], allergic dermatitis is the most common (58.5%) disease prevailing among the press workers and similarly, in the present study, the most common symptoms included itching of the skin, skin irritation, allergy, dry skin, skin rash, etc. These are, in fact, the main symptoms of allergic dermatitis and this is in line with Northcott and Nosal who illustrated a similar pattern [9].

Eye irritation, blurred vision and other non-specific problems in vision have been identified as the major conditions affecting eyes and the vision of the workers in the selected study areas. Exposure to industrial occupational and hazardous chemicals might be the contributing factors. The major respiratory tract problems including coughing, breathing difficulty, tightness of the chest, chest pain and shortness of breath, due to the chemicals, were also very common symptoms among the workers. These symptoms might precipitate asthma among the workers as a long-term consequence. Among the common gastrointestinal problems were abdominal pain, constipation, and dry mouth. Various forms of physical problems related to the skeleto-muscular system, for example, joint pains, muscle weakness, back pain and numbness in the hands or feet, also prevailed very commonly. As mentioned earlier, working with a faulty or heavy-duty machine, and additionally frequent working for extended hours, might be the reasons. Working extra hours or for a longer period on a regular basis might also be responsible for extreme exhaustion and severe headache as reported by the workers.

Despite 67% workers visiting the doctor due to various medical illnesses (98.81%), and despite having the previously mentioned symptoms, there seems to be a lack of awareness and interest towards seeking regular medical check-up, with 41% of the workers showing absolutely no interest in seeking medical assistance and even a higher proportion of the workers (29%) were doubtful of its necessity. Reasons for this lack of awareness and doubt were informed to be mostly financial problems (44.55%) and thought of the absence of any major disease (47.52%). Some (15.84%) informed self-medication practice as another reason. If measures are not taken to increase this awareness regarding regular medical assistance, this

crisis might take the form of different chronic diseases and health hazards that might occur due to the negligence in health check-up or from the self-prescribing behavior of the workers.

For treating any kind of injury, there should be a doctor or at least a first aid kit available in the press. In this study, it was seen that only 16% of the workers know about the doctor and only 25.20% of the workers know about the presence of first aid kit, which is not satisfactory at all. The most frightening part was that none of them was using any protective measures to prevent any kind of traumatic injury or serious health condition, nor did they receive any proper training on safe performance of work. These might be the contributing factors for various forms of physical injuries experienced by the press workers. Agbenorku et al [4] opined that occupational injuries are quite common among the press workers. As they dealt with different types of machinery, sharp objects and chemicals, Marek et al. [10] and Sorock et al.[11] confirmed that mechanical equipment or machinery parts are predominately responsible for causing traumatic injuries. But in this study, only 31% of the workers had some experience of any kind of injury which is very low compared to other studies. Contact with moving parts and sharp edges have been found as the frequent reasons for injury. It is, however, difficult to generalize the situation as the study incorporated only a small number of workers found only in the Dhaka city area.

Nonetheless, it is possible to overcome these health-related problems and thereby ensure the health and safety of the workers by imposing some rules and regulations on the employers to ensure safety at the workplace. For example, there should be the restriction in working with a faulty machine or instrument which may cause imminent danger to the health or safety of the worker until the aforementioned machine is either repaired or replaced. Also, protective measures should be provided to every worker. The employers must also ensure that the workers have undergone proper training on safety measures during work. A minimum of one doctor/health professional should be present in the premises for providing medical care in case of an emergency or accident, and there should always be a primary first aid kit available to handle the injury. Moreover, presses will arrange regular health care check-ups for the workers. Rigorous efforts are also required to decrease the overtime frequency of the workers.

CONCLUSION

The press workers operate at an extremely vulnerable state as revealed in this study. They are not only at the risk of work-related injuries but also at the risk of developing various physical diseases. With mostly high school education, they come to work, which involves handling various harmful chemicals. However, due to their lack of professional knowledge, they are unaware and negligent of the risks they undergo every day by handling these chemicals without any proper protection, and the necessity of regular medical check-ups. Consequently, they suffer from various severe diseases. At this point, the only way to overcome this crisis is to put a strict liability on the employers, in which not only will the workers get proper safety training, but will also be provided with various medical facilities and protective equipment on a regular basis. If the employers are forced to abide by such safety regulations, the risk to the workers shall diminish and safety can be ensured. It is, however, worth mentioning that this research was only conducted on rather smaller presses. Therefore, it is recommended that further researches be conducted on a greater scale, in order to get insight into the whole context of the country.

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