

PREVENTIVE METHODS USED FOR HEALTH AND SAFETY HAZARDS IN HOTEL INDUSTRY IN SRI LANKA

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ABSTRACT

Occupational safety and health is a discipline which aims at the promotion and maintenance of the highest degree of physical, mental and social well-being of workers. It involves the protection of workers in their employment from risks resulting factors, which are adverse to their safety and health condition. If there is a safety and health issue in an organisation, it will lead to various problems and puts the worker, their families, other people in the community, and the physical environment around the work place at a risk. Literature reveals that health and safety matter in hotel industry is a very broad and critical concept that should be taken in to consideration. However, a study which has been carried on health and safety hazards in hotel industry is hardly found in Sri Lanka. Therefore, in order to address the above gap, this research aims at identifying the health and safety hazards, causes of those hazards and the preventive measures that can be adopted to minimise these hazards in hotel industry of Sri Lanka.

A three step approach; a literature survey, a preliminary study and a detailed questionnaire survey, was carried out in achieving the aim of this research. The study identified 'Cuts and Burns' and 'Electrical Hazards' as the most critical health and safety hazards in hotel industry. According to the study the most critical causes for those hazards are 'Open Flames' and 'Contact with Electricity from Machines' respectively. Further, 'Inadequate Instructions' and 'Inadequate Safety Education' could be identified as the most critical factors that affect the overall health and safety hazards in hotel industry. As the findings revealed, the usage of preventive methods to mitigate health and safety hazards in hotel industry in Sri Lanka, is at a very low level and using PPE and fire protection methods and maintaining a good housekeeping procedure are the mostly practiced preventive methods. Further, there are lot more to implement in order to minimise/eliminate health and safety hazards.

Keywords: *Health and Safety Hazards, Causes, Preventive Measures, Hotel Industry, Sri Lanka.*

1. INTRODUCTION

According to Wong *et al.* (2007) health can be defined as the state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. Cooper and Phillips (2004) viewed safety as a snapshot of the prevailing state of safety in the organisation at a discrete point in time and may change over time. Health and safety hazards have a potential to cause harm to property, humans' health and even to their lives. Even though, earlier, safety and health hazard protection was not given an adequate consideration as a business success factor, nowadays it has become a major positive factor in favour of organisational as well as economic growth and productivity. Therefore, industries need occupational health and safety management systems that help them to prevent and mitigate health and safety issues by identifying and selecting the most critical hazards and managing them while adopting preventive measures.

Hotel industry is associated with various types of health and safety hazards and it has a major impact on profit. Therefore there is an imperative need to identify the ways of improving control of health and safety hazards at work in the local context in order to pursue better health and safety performance. In Sri Lanka, there is no national body to regulate and monitor the practice of health and safety hazard controls in hotel industry. Therefore obviously there is a need for a health and safety hazards mitigate programs in Sri Lankan hotel industry. Even though few numbers of researches (Munasinghe, 2011; Jayanthika, 2010;

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Perera, 2010; Ranasinghe, 2009) have been conducted in the area of health and safety in Sri Lankan context, a study which addresses the health and safety issues in hotel industry in Sri Lanka is hardly found. Therefore, an attempt was made in this research to identify the health and safety hazards, causes of them and preventive measures that can be adopted to minimise the health and safety risk of hotel industry of Sri Lanka.

2. HEALTH AND SAFETY HAZARDS IN HOTEL INDUSTRY

According to the International Labour Organisation (ILO) (2009), occupational safety and health is a discipline with a broad scope involving many specialised fields. In its broadest sense, it should aim at the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations, the prevention among workers of adverse effects on health caused by their working conditions, the protection of workers in their employment from risks resulting from factors adverse to health the placing and maintenance of works in an occupational environment adapted to physical and mental needs and the adaption of work to humans. In other words, occupational health and safety encompass the social, mental and physical well-being of workers that is the 'whole person'.

Hazard is a condition of changing a set of circumstances that presents a potential for injury, illness or property damage (Jekayinfa *et al.*, 2009). It is a source of potential harm to human health, property or environment, and under certain conditions hazards may lead to accidents which typically occur suddenly and unexpectedly causing immediate injuries and losses (Lind *et al.*, 2008). Further, many health and safety problems also can be slowly developed due to the exposure to these hazards (Lind *et al.*, 2008). If there is a safety and health problem in an organisation it will lead to sickness absence, high staff turnover, re-training of the staff, loss of production and subsequently it will increase the compensation (Phil and Ferret, 2008). In addition it will create poor working condition within the organisation. This means that worker, their families, other people in the community, and the physical environment around the work place, can all be at risk from exposure to health and safety hazards.

According to Hassanain (2009), a hotel is a facility that provides paid accommodation on a short-term basis. The International Code Council (2003) defined a hotel as any building consisting of six or more guest rooms intended or designed to be used or that are used rented or hired out to be occupied for sleeping purposes by guests. Health and safety of the hotel employment, staff, guest and other personal health and safety is concerned with protecting the safety, health and welfare of people engaged in work or employment.

There are various health and safety hazards associated with hotel industry. According to the Calvin and Joseph (2006), physical, chemical and mechanical are the main types of health and safety hazards happened in the hotel industry. Physical hazards include noise, vibration, heat and colds stress, dangerous machinery, electricity and fire safety and lighting. Chemical hazards include acids, bases, heavy metals, solvents, fumes and highly reactive chemicals. According to the Mill and Lin (2001), hazards resulting in physical hazards and fatalities in hotel industry can be broadly categorised into the basic groups as falling from heights, struck by falling objects, accident by operation of machinery/tools, electrocution, fire/explosion, failure of temporary structures and others (e.g. slipping on the same level, oxygen deficiency in confined spaces, lightning strike, etc.). As Hassanain (2009) mentioned, fire hazard is a main hazard type with regard to hotel industry. Further, as Lind *et al.* (2008) stated, main hazard types are poor ergonomics in operations and physical hazards. However, European Agency for Safety and Health at Work Organisation (2008) argued that, types of health and safety hazards are in terms of occupational accidents, slips, trips and falls, as well as cuts and burns represent the largest share.

3. CAUSES FOR HEALTH AND SAFETY HAZARDS IN HOTEL INDUSTRY

According to Mill and Linn (2001), major causes of occupational health and safety failures are inadequate safety education, instruction, housekeeping and wilful transgression. In addition, improper equipment and working platform, wrong safety attitude, lack of monitoring and supervision, lack of proper procedure and guideline and time constraints are the causes of fall accidents (Wong *et al.*, 2007). According to Cooper

(1998), some jobs require, for instance, a large degree of manual dexterity (e.g. electronic assembly work). Others require problem solving skills (e.g. a process control operator in a chemical factory). Some people are good at these tasks, others are not and therefore, inadequate training is also a factor that lead to cause health and safety hazards.

A research (Hassanain, 2009) revealed that the main causes of hotel fires are arson, open flames or smoking and cooking equipment. Further, according to this research hotels can be considered as a high risk type of facility regarding fire hazard due to several number of factors. These factors are high occupancy load present at the building, especially in banquet halls and conference centres, the high-fuel load present in hotel facilities, unfamiliarity with the building results in experiencing difficulty in finding the way out of the building in case of fire emergencies and the existence of high fire risk areas. Study by Hassanain (2009) identified the sources of health and safety hazards arise in hotel building are as guest rooms, hotel kitchen, laundry and etc. Potential fire hazards in guest rooms include smoking, candles, covered lamps, ash trays, coffee machines, irons, defective television sets, defective radios, and defective refrigerators, overheated hairdryers, electric blankets, fixed and portable space heaters, overloaded circuits and short circuits.

As Lind *et al.* (2008) viewed, there are two causes for ergonomics hazards. First, the workers may be unaware of proper working postures and methods and they may also be unwilling to give up unsafe routines, especially under pressure of time. Second, on many sites the design of machine and process or work environment is poor from the perspective of maintenance. Further, poor working postures head, neck, shoulders, upper and lower limbs, back and missing or misleading operational safety bulletins are also ergonomics related causes. In physical hazards, most typical injury risks are slipping, tripping and a person falling from height. Not using any Personal Protective Equipment (PPE) is also result in arising of physical hazards. Other risks of falling were related to occasional climbing to a high place. However, as Wlters (1998) argued, reasons for poor health and safety performance have been attributed to a variety of factors such as limited resources, limited knowledge of regulatory requirements, poor awareness of the economic advantages of health and safety, poor knowledge and understanding of safe working practices and absence of preventive services.

4. PREVENTIVE MEASURES FOR HEALTH AND SAFETY HAZARDS IN HOTEL INDUSTRY

A study by Wright (1998 cited Fuller, 1999, p.325) shows that non-controlling of health and safety hazards is often perceived as an area of operational management where costs exceed benefits. Further, poor health and safety performance has been reported to significant impact of organisations' profits (Davies and Teasdale, 1994). As Cooper and Phillips (2004) pointed out, safety behaviour will result in dramatic improvements in safety performance in terms of reductions in accidents, workers compensation costs, and insurance premiums. According to Ranasinghe (2009), health and safety hazards preventive methods are important for any industry as they would result in reduced risks and losses, reduced cost, reliable operations, systematic and efficient approach to health and safety at work, low turnover of people, positive company image, reputation and compliance to rates, legislation, company standards and practices.

According to Mill and Linn (2001), controlling health and safety hazards by practicing of health and safety management systems is one of the main foundations that lead to the success of a business. Hence, industries need occupational health and safety management systems that help them to prevent and mitigate accidents by identifying and selecting the most critical hazards and managing them while adopting preventive measures. The International Labour Organisation (2009) adopted a new convention on the prevention of major industrial hazards. This provides a framework for the establishment of a national major hazard system for the prevention of industrial hazards and to mitigate the consequences of such hazards. It requires the formulation, implementation and periodic review of a coherent national policy concerning the protection of employees, the community and environment, against risk from major hazards.

According to the literature findings, using Personnel Protective Equipments (PPEs) (Lin, 2001; OSHA, 2000), applying fire protection methods (Hassanain, 2009), conducting health and safety programmes (Hinze, 1988 cited Mill and Linn 2001), risk assessment (Lind *et al.*, 2008; Adebisi *et al.*, 2007) and risk management (Cooper, 1998), forming a safety committee (Mill and Lin, 2001), adopting a health and

safety management system (Lind *et al.*, (2008), practising good housekeeping (OSHA, 2000), maintaining equipment on schedule (OSHA, 2000), evaluation of health and safety hazards (OSHA, 2000) hazard identification (Mignanelli, 2000) and emergency procedures (Navon *et al.*, 2007) are the major health and safety preventive measures used in hotel industry.

Literature reveals that hotel industry health and safety is very broad and critical concept that should be taken in to consideration. Even though a few researches (Munasinghe, 2011; Jayanthika, 2010; Perera, 2010; Ranasinghe, 2009) have been conducted on health and safety issues in food manufacturing industry, construction industry and apparel industry in Sri Lanka, to date there is no research which addresses the health and safety hazards, their causes and the preventive actions that can be taken to minimise the health and safety hazard in hotel industry of Sri Lanka.

5. RESEARCH METHODOLOGY

The survey research was selected as the research approach for this research and followings techniques were used in data collection and analysis.

5.1. DATA COLLECTION TECHNIQUES

A three step approach was adopted for the data collection of this research. Three steps are; literature survey, preliminary questionnaire survey and detailed questionnaire survey. First, a comprehensive literature survey was carried out and then a model for mitigating health and safety hazards hotel industry was developed by identifying the health and safety hazards of hotel industry, causes, effects and preventive measures of mitigating them. A subsequent preliminary questionnaire survey was carried out and according to the findings, the proposed model for mitigating health and safety hazards was revised to comply with the in Sri Lankan hotel industry. The revised model was the basis in developing the detailed questionnaire. The detailed questionnaire survey was conducted to identify critical health and safety hazards, major causes for each hazard and to identify the current practice of preventive methods of health and safety hazards in hotel industry in Sri Lanka. A 0-4 Likert scale was used to collect the relevant data from the respondents. Further, the literature survey was carried out among sixty employees of randomly selected 10 hotels in Western province.

5.2. DATA ANALYSIS TECHNIQUES

Before analysing the detailed survey findings, Cronbach's Alpha was used to check the internal consistency of selected factors in this research. Statistical Package for Social Science (SPSS 16) was employed to carry out the reliability analysis. In analysing the findings of the detailed survey, 'Relative Important Index (RII)' for each factor was computed to rank and deliver an indication of the impact level of hazards and their causes. Percentage Analysis Method was used to identify the current practice of preventive methods.

6. DATA ANALYSIS AND RESEARCH FINDINGS

6.1. LITERATURE SURVEY FINDINGS

After a comprehensive literature survey, a model for mitigating health and safety hazards in hotel industry was developed by identifying the health and safety hazards of hotel industry, causes and preventive measures of mitigating them. Literature survey identified 15 major health and safety hazards. The identified causes of health and safety hazards were categorised into three groups as machine related causes, work environment related causes and material related causes. Further, nine effects of health and safety hazards and twelve preventive methods of mitigating health and safety hazards in hotel industry also could be integrated to this model.

6.2. PRELIMINARY SURVEY FINDINGS

According to the findings of preliminary questionnaire survey, changes were made to the developed model for mitigating health and safety hazards in hotel industry. New causes for health and safety hazards in hotel industry; less communication; poor monitoring and supervision; poor resource allocation; poor design of machines, process and work environment, etc. were identified and added to the revised health and safety model. Further, based on the preliminary survey findings, some factors which were in the conceptual model were removed and some factors were combined together where it was needed. In addition, a new category ‘methods related causes’ was identified according to the respondents’ views. The newly identified causes; lack of new technology and poor permit license and approvals were included under this category. The revised model which was named as model for mitigating health and safety hazards in hotel industry in Sri Lanka is given in Figure 1.

6.3. DETAILED QUESTIONNAIRE SURVEY FINDINGS

The detailed questionnaire survey was used to identify the most critical health and safety hazards in hotel industry in Sri Lanka and also to identify the causes of those hazards. Further, questionnaire survey was employed to study about the current usage of identified preventive measures that can be adopted to minimise the health and safety hazards.

6.3.1. MOST CRITICAL HEALTH AND SAFETY HAZARDS IN HOTEL INDUSTRY

In identifying the most critical health and safety hazards in hotel industry, the respondents were required to use a 0-4 Likert Scale: where 4 represents severe impact, 3 represents high impact, 2 represents moderate impact, 1 represents little impact and 0 represents no impact. Here, the RII values come within the range of zero to one (0-1) and therefore, hazards which obtained more than 0.5 RII value were identified as critical health and safety hazards. Survey results showed that most critical hazard is cut and burns which has gained high impact level as 0.71. Further, as the Figure 2 shows, secondly and thirdly critical health and safety hazards are electrical hazards (0.66.) and heat (0.62.). Slipping and tripping, accidents happened due to machinery, chemical hazards, falling from heights, fire and ergonomics are also have received RII values over 0.5 and therefore, they are the next critical health and safety hazards respectively. The RII values of other hazards were less than 0.5. Therefore, biological hazard (0.49), cold stress (0.43), noise (0.33), inadequate lighting (0.32) and vibration (0.26) were identified as minor health and safety hazards in hotel industry in Sri Lanka.

6.3.2. MOST CRITICAL CAUSES FOR HEALTH AND SAFETY HAZARDS IN HOTEL INDUSTRY

In identifying the most critical causes for health and safety hazards in hotel industry, the respondents were asked to rank the causes in a 0-4 Likert scale: where 4 represents severe effect, 3 represents high effect, 2 represents moderate effect, 1 represents little effect and 0 represents no effect.

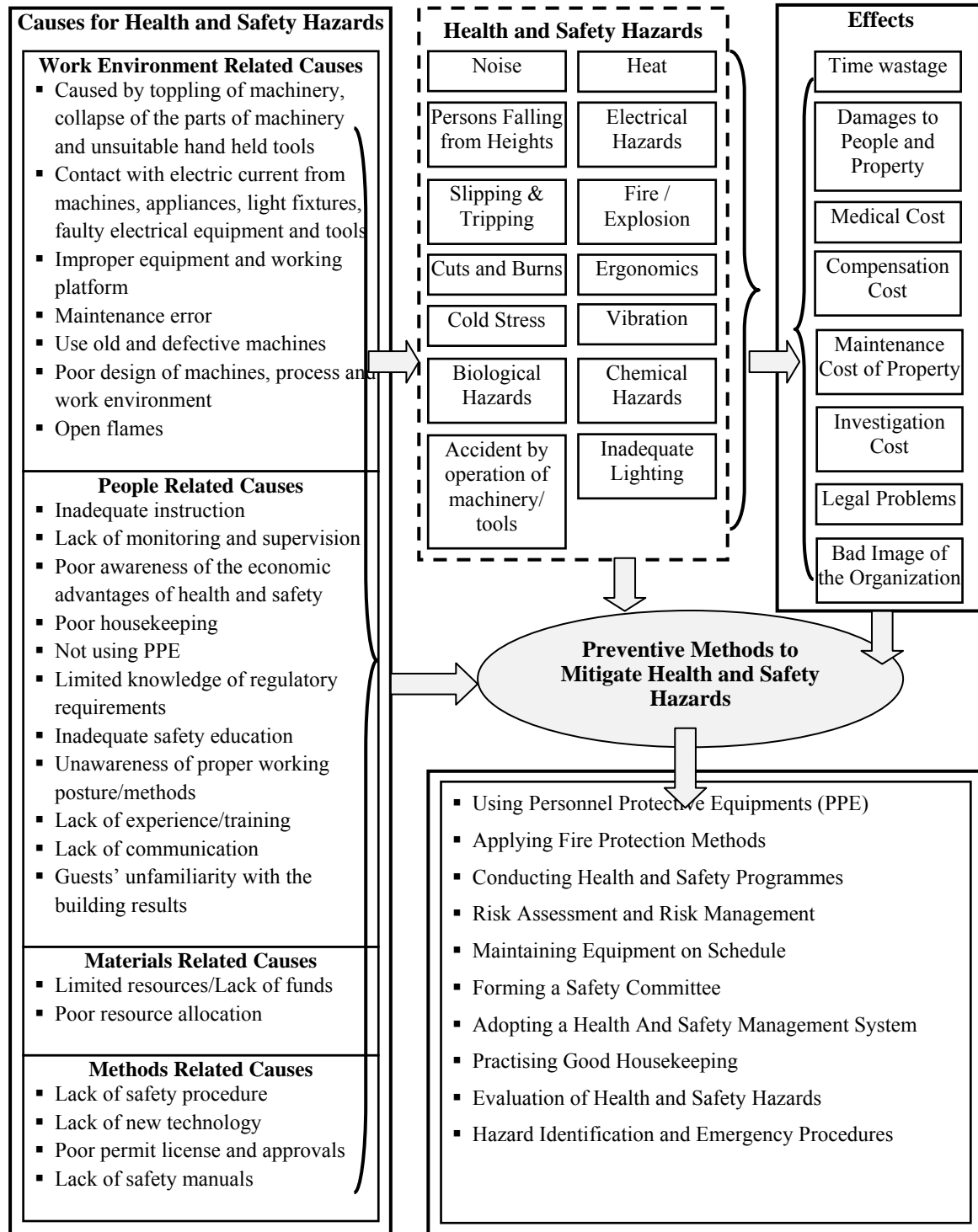


Figure 1: Model for Mitigating Health and Safety Hazards in Hotel Industry in Sri Lanka

The survey results revealed that inadequate instruction (0.601) as the most critical cause for overall health and safety hazards. Inadequate safety education (0.598) and poor design of machines, process and work environment (0.566) are secondly and thirdly critical causes. Lack of proper procedures and guidelines (0.546), lack of monitoring and supervision and not using PPE are also major causes for health and safety hazard in hotel industry in Sri Lanka. Awareness of economic advantage of health and safety (0.41), less communication (0.34) and poor housekeeping has (0.31) could be identified as minor causes for overall health and safety hazards.

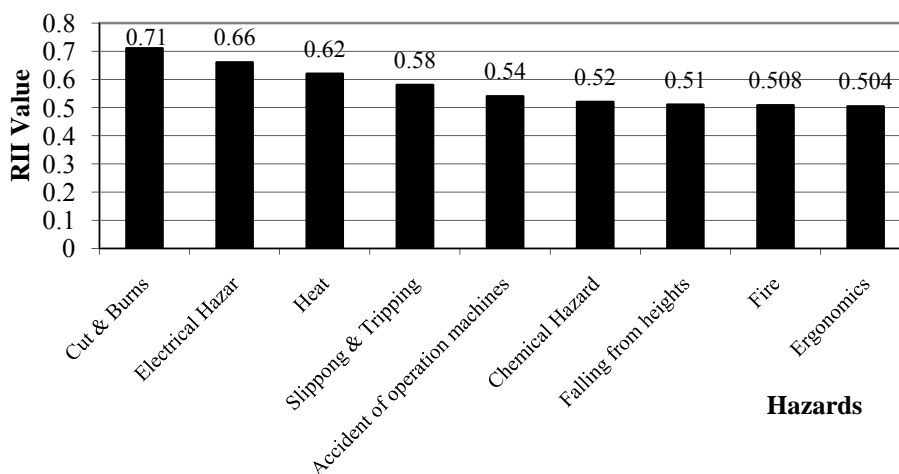


Figure 2: Critical Health and Safety Hazards in Hotel Industry

As it was mentioned above, cut and burns, electrical hazards, heat, slipping and tripping, accident by operation of machinery/tools, chemical hazards, falling from heights, fire/explosion and ergonomics were identified as the most critical health and safety hazards in hotel industry in Sri Lanka. According to the survey findings, open flames (0.77), contact with electric current from machines (0.71) and toppling of machinery, collapse of parts of the machinery (0.704) have a significant impact to cause cuts and burns. Generally, a large amount of electric machinery and equipment are used in hotel industry. Open flames can be largely found in kitchen equipment. Hence, due to these causes, cuts and burns have become a critical health and safety hazard in hotel industry. Similarly, contact with electric current from machines (0.75) and open flames (0.608) badly affect to cause electrical hazards as well. In addition, inadequate safety education (0.679) also has a significant impact on electrical hazards. The most significant cause for Heat hazard is Open Flames and its RII value is 0.72. Workers in the kitchen have to expose to this hazard because, most of kitchen equipments are open flames and generate more heat. The next critical cause for heat hazard is lack of usage of PPE (0.68). Workers should wear PPE such as gloves, goggles and special uniforms to protect from the heat. Contact with electric current from machines (0.66) is also a critical cause for heat hazard. Poor housekeeping (0.766), lack of monitoring and supervision (0.725) and lack of proper procedure and guideline (0.7125) are the most significant causes for slipping and tripping hazard respectively. If smooth floor areas in rooms, swimming pools and bath rooms are not properly cleaned and these activities are not properly supervised it will lead cause this hazard. Further, proper guidelines and standards are also required to ensure the elimination of slipping and tripping hazard.

The next critical hazard is accidents that can be happened while operation of machinery. The results revealed that Contact with electric current from machines (0.595), inadequate instruction (0.595), inadequate safety education (0.591) and poor design of machine, process, and work environment (0.587). If the employees are not trained on operating procedures of the machinery in advance and if they are not educated on safety practices accidents can be happened while they are operating the machinery. Further, a poorly designed work environment, machine or a process itself contains the risk of happening accidents. The chemical hazards include exposure to gases, fumes, liquids, solids, vapor, acids, etc. As the study identified, the critical causes of these hazards are inadequate instructions (0.737), inadequate safety education (0.666) and not using PPE (0.637). If the employees are exposed to gases, fumes, liquids, solids, vapour, acids, etc. They should be provided with proper instructions and safety education. Absence of such education leads to cause chemical hazards in a hotel facility.

Most of the hotels are high rise buildings and most of the time hotel employees have to engage in works such cleaning windows in upper floors, installing the instruments in high rise places (antenna, satellite) and work in high rise temporary structures. When engaging in such works there is a high probability for people falling from height. The critical causes for this hazard are poor design of machinery, process, work environment (0.604), not using PPE (0.591) and inadequate instructions (0.587) respectively. In hotel industry fire/explosion hazard has been identified as a critical hazard because damages causes by fire hazard is very high. According to the respondents' view most affected cause for fire hazard is open flames

(0.777). Contact with electric current from machines (0.741) and lack of proper procedure and guidelines (0.65) are the critical causes of fire/explosion hazard. According to Hassanain (2009), kitchen is a primary area in hotels, where fire hazards are occurred. Poor design of machine, process, and work environment is the most significant cause for ergonomics hazard (0.733). Further, improper equipment and working platform (0.675) and unawareness of proper working postures and methods (0.67) were the next critical causes. Poor designs of workplace and machines will cause muscular pains. Poor work environment result in mental stress and aches in body parts. In addition improper postures also result in ergonomics hazards.

6.3.3. CURRENT PRACTICE OF PREVENTIVE METHODS OF HEALTH AND SAFETY HAZARDS

According to the research findings, the current practice of preventive methods of health and safety hazards of hotel industry in Sri Lanka is given in Figure 3. The study revealed that the practice of preventive methods to health and safety hazards in hotel industry in Sri Lanka is at lower level. According to the findings, using PPE and fire protection methods are the mostly used preventive methods in the hotel industry and have percentage of 100%.

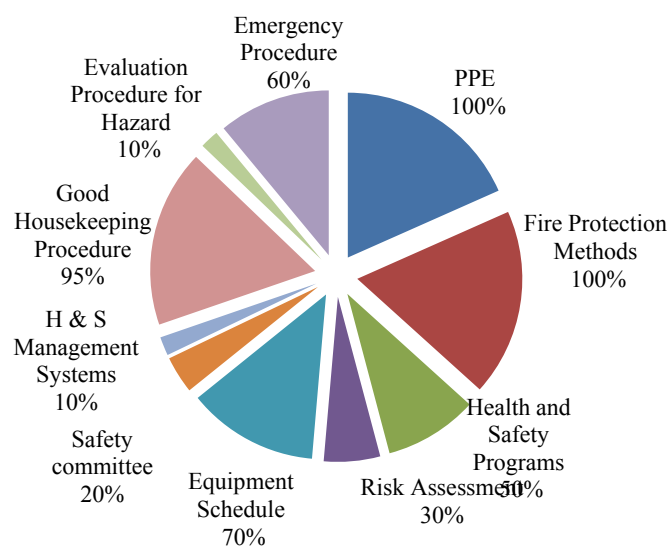


Figure 3: Current Practice of Preventive Methods of Health and Safety Hazards in Hotel Industry in Sri Lanka

Maintaining a good housekeeping procedure is practiced by 95% of hotels. Further, equipment schedules and emergency procedure are currently practiced by 70% and 60% of hotels respectively. In addition to above preventive practices, all the other preventive measures have been given a less priority by the hotel industry in Sri Lanka. As the research found, most of respondents have given less priority for health and safety programs (50%), conducting risk assessment (30%), appointing safety committee (20%), maintaining health and safety management systems (10%) and evaluation procedure for hazards (10%). Preventive methods of health and safety hazards enable an organisation to mitigate health and safety issues that can be occurred in the future. Less practice of these methods will cause health and safety issues in future. Therefore, preventive methods should be implemented and properly used to mitigate health and safety hazards in hotel industry in Sri Lanka.

7. CONCLUSIONS

Occupational safety and health is a cross-disciplinary area concerned with protecting the safety, health and welfare of people engaged in work or employment. It ensures a safe and healthy work environment and protects workers, their family members, employers, customers, suppliers, nearby communities and other members of the public who are affected by the workplace environment. Health and safety hazards lead to workers' illnesses, pain, anxiety, depression and various other health and safety issues. Further, it creates great losses to an organisation in terms of cost, time and management efforts. A hotel is a commercial

establishment that provides paid lodging, meals, and other guest services. The problem of health and safety hazards is very detrimental to the hotel industry and it has become a major burden as well. Even though workers' health and safety is becoming an increasingly more important part of modern management, managing health and safety hazards is a challenging process.

In managing the health and safety hazards in hotels, the identification of actual hazards, their causes and preventive actions is important. Even though such necessity is there, no research has identified above factors in Sri Lankan context. Therefore this study aimed at identifying the health and safety hazards in hotel industry, their causes and preventive actions. In achieving the above aim, first, a model for mitigating health and safety hazards in hotel industry was developed through a comprehensive literature review by identifying the health and safety hazards, their causes, effects and the preventive measures. The developed model was revised through a subsequent preliminary survey and it was named as the model for mitigating health and safety hazards in hotel industry in Sri Lanka. The revised model comprises of 14 health and safety hazards; noise, heat, fire/ explosion, slipping and tripping, persons falling from heights, electrical hazards, cuts and burns, ergonomics, cold stress, vibration, biological hazards, chemical hazards, accidents happen due to operation of machinery/tools and inadequate lighting. Further, number of causes for these hazards and preventive measures also could be identified and integrated to this model.

The detailed questionnaire survey was carried out to study the impact of identified health and safety hazards to a hotel and the effect of each identified cause to those hazards. Further, it aimed at identifying the current practice of identified health and safety hazards preventive methods in hotel industry in Sri Lanka. According to the findings, the most critical hazard was cut and burns. Further, electrical hazards, heat, slipping and tripping, accidents happened due to machinery, chemical hazards, falling from heights, fire and ergonomics are also identified as critical health and safety hazards respectively.

As the study revealed, open flames, contact with electric current from machines, open flames, poor housekeeping, contact with electric current from machines, inadequate instructions, poor design of machinery, process, work environment, open flames, and poor design of machine, process, and work environment were the most critical causes for above health and safety hazards respectively. The findings show that similar causes have led to create several health and safety hazards. However, according to the survey results, inadequate instruction was the most critical cause for overall health and safety hazards. Inadequate safety education and poor design of machines, process and work environment are became secondly and thirdly critical causes for overall health and safety hazards. Moreover, the preventive methods; PPE and fire protection methods are used by almost all the hotels. Good housekeeping procedures are practiced by 95% of hotels and equipment schedules and emergency procedure are currently practiced by 70% and 60% of hotels respectively. The research further identified that important preventive methods; health and safety programs (50%), conducting risk assessment (30%), appointing safety committee (20%), maintaining health and safety management systems (10%) and evaluation procedure for hazards (10%) are practiced by limited number of hotels.

As the occurrence of health and safety issues harm the people and property, reduce the performance of the organisation, lead to increase the cost and minimise the profitability. Going for preventive measures is very much important to sustain in the market. This research provides the hotel management with major health and safety hazards of hotel industry in Sri Lanka and their critical causes. Therefore, the necessary preventive actions should be taken by management in order to minimise the health and safety hazards and improve the safety performance.

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