



Assessing Health Status and Safety Management of Industry Workers in Bhutan

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Abstract

Industries contribute not only to generate the national income but also in terms of employment for the citizens and therefore industry workers play a vital role in the growth of the economy of our country. While the number of Industries has been steadily increasing, the Ministry of Labour and Human Resources is incapacitated in the implementation of the standards (Dhendup, 2017). To fill this research gap, the study is an attempt to answer some vital research questions which may serve a valuable contribution to the existing literature. In-depth face to face interview was conducted using a quantitatively designed survey questionnaire for 195 industrial workers. It was found that though industries play a vital role in Bhutan's economy, the industries are yet to fully implement worker-friendly policies and environment. A relatively high number of work-related accidents were observed in the industries in response to fewer safety briefings being provided.

So, the industries should focus more on the health and safety of their employees for maximum output because healthy and safe workers yield better quality results.

Introduction

Industries contribute not only to generate the national income but also in terms of employment for the citizens. When we look into Bhutan, over the recent decades, about 10.1 % of the population had been employed in industrial sectors recorded in 2008 and has been increasing ever since (Ministry of Economic Affairs Bhutan, 2011). The products manufactured in the industries were also exported which brought a net profit of approximately 912.4 million Ngultrum (Nu) (Roughly 15 million USD). As of 2008, industries in Bhutan have contributed about Nu. 3,009 million Ngultrum (roughly 48 million USD) to the national GDP which accounts for 5.5% of total GDP. This growth cannot be achieved without the contributions of the labour force involved in different industrial sectors of the country (Ministry of Labour and Human Resources Bhutan, 2015). These statistics highlight the importance of Industry and industry worker in terms of economic development of a country. According International Labor Organisation, occupational health and safety (OSH) is generally defined as the science of the anticipation, recognition, evaluation and control of hazards arising in or from the workplace that could impair the health and well-being of workers, taking into account the possible impact on the surrounding communities and the general environment (Fundamental Principles of Occupational Health and Safety) and good health status and safety management of a worker is characterized by protection, personal development opportunities and protection from physical and psychosocial hazards which is essential in order to maintain a good working condition thereby enhancing the productivity of the industry (WHO, 2017).

Literature Review

Industry workers play a vital role in the growth of the economy of our country. As Bhutan has been gaining momentum in the field of economic development through industries, it is important for Bhutan to focus on the health status of Industry workers. Marilyn Bergner, Johns Hopkins University, Department of Health Policy and Management, states that “Health Status” is a professional jargon due to the lack of agreed-upon definition of health but the definition proposed by World Health Organization (“A state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity”) in 1948 has been widely accepted and she believes that it is because the definition includes some aspect of physiological or biological status, mental state, physical and social functioning, and health behaviors and attitudes (Bergner, 1987, pg 191). To achieve such health status for the workers, the organizations be able to implement good health condition and proper safety management. Good health status and safety and health management systems are required for a worker for him/her be able to be productive, to have a subsistence level of household income, and to remain an active participant in the economic development of the country. Health and Safety Authority, Ireland states that the safety and health management system of an organization should cover the health and safety work policy, the planning process for accident and ill health prevention, the line management responsibilities and, the practices, procedures, and resources for developing and implementing, reviewing and maintaining the occupational safety and health policy (HSA, 2018). However, Bhutan faces challenges when providing sufficient resources and support in such sectors of occupation. All these hinder the growth in terms of sustainability, equity, and safety (National Occupational Health and Safety Policy, 3). For proper economic growth industry workers should

be protected in terms of vulnerabilities, their health, and rights. Effective laws and policies are required in order to protect the industry workers from getting their rights violated. Bhutan is not a member of the International Labour Organization, but it has its own National Labour Act and Regulation on Occupational Health, Safety and Welfare 2012 to protect the industry workers. According to the National Statistics Bureau, the number of industries (large) in the country has increased from 72 industries in 2006 to 485 in 2017 (NSB, 2017). While the number of Industries has been steadily increasing, the Ministry of Labour and Human Resources is incapacitated in the implementation of the standards (Dhendup, 2017). To fill this research gap, the study is an attempt to answer some vital research questions which may serve a valuable contribution to the existing literature. This study will mainly focus on providing an updated version of the safety management in the industries in Bhutan and make it available to the mass through online.

Objectives of the Study

Considering the current situation of the health status and the safety management of the industrial workers in Bhutan, we address the following objectives:

- i. Assessing the health status of industry workers in Bhutan.
- ii. Identifying the safety management procedure of the industrial workers in Bhutan.
- iii. To find the reasons for occupational accidents which leads to health hazards in the particular industry.
- iv. To provide some policy recommendations to the concerned industries and policymakers based on the findings of the study.

Methodology

Sample Size:

The industries that we covered in this research were Bhutan Agro Industries, Bhutan GRC, Bio Bhutan, Singye Stone and Sand Factory, Nado Poizokhang, Highland Wood Enterprise, Yangchab Fabrication Unit, Bhutan Concrete Bricks, Nazhoen Pelri Eco-Friendly Initiative (Under YDF, Bjemina), Singye Group of Companies (Limestone factory) and Bhutan Stones and Aggregate Factory.

Sample Size and Sampling Method:

Total sample size: 195

1. Industry workers: 165
2. Industry Management Workers: 30

Inclusion and exclusion method for the participants:

Inclusion:

We conducted an in depth face to face interviews using a quantitatively designed survey questionnaire for 195 industrial workers from the above mentioned industries. We used quota sampling to choose 10 random industries which has at least 15 workers and which has health hazards for workers. We will used judgmental sampling method to select two or more people related to industry management (employers) per industry which gave us the statement from the employers side too. Then from each industry we selected 15 labors by using simple random sampling method whereby every worker had equal probability of getting chosen or Snowball sampling method to increase participation from the management and the industrial workers to serve the purpose of our study.

Exclusion:

Participants with any mental disabilities has not been included in the study in order to avoid leaking the information.

Secondary Research/Desk Review:

The secondary research includes discussions, literature review of similar studies and compares the findings of those studies and preparing questionnaire for conducting the survey. The study solely used a quantitative approach using survey questionnaire at an individual level.

Thimphu, Pasakha, and Phuentsholing were the field work areas.

Data Analysis Tools

After data cleaning and necessary corrections, the collected data were analysed using statistical software package SPSS and Microsoft Excel 2007. Based on the analysis and findings, policy recommendations will be provided and the findings will be shared with the concerned industries in Bhutan.

Sample Questionnaire

For Industry Workers:

Section 1: Identification

Name of the manufactured product:

Participant no:

Date:

Interviewer Name:

Signature:

Consent

Do you agree to participate in this interview? 1=Yes 2=No

Section 2: Demographic Characteristics of Participants

2.1. Sex: Male...0 Female...1 Other...2

2.2. Age: Years

2.3. Marital Status: Single...0 Married...1 Widowed...2

2.4. No. of Household Members:

No. of adults:

No. of children below 18:

2.5. Language:

Dzongkha-1 Lhotsamkha-2: Sarchop-3: Others (specify):.....

2.6. Education Level:

No school-1: Primary level-2: Secondary level-3: Higher Education-4:

2.7. Designation/ Department:

2.8. Average no. of working hours per day:

2.9. How many days a week do you work?

2.10. Which shift do you work?

Early Morning (6AM-2PM)...0 Day (2PM-10PM)...1

Night (10PM-6AM)...2 General Shift(8:30AM-5:30PM)...3

Other...4

2.11. Do you have/do overtime?

Yes...0 No...1

If yes, how much are you paid for extra hour?

2.12. No. of years worked in the industry:

2.13. Do you have enough knowledge about the industry you're working in?

Yes...0 No...1

Section 3: Health

3.1. How frequently do you visit the doctor?

Never...0 Rarely...1 Yearly...2 Monthly...3

3.2. Have you ever been admitted to the hospital?

Yes...0 No...1

If yes, when and why?

3.3. Do you have any disease or allergies?

Yes...0 No...1

If yes, do you have any chronic diseases?

Yes...0 No...1

3.4. Did you have any health issues after you started working for this industry?

Yes...0 No...1

If yes, what type?

3.5. Are you aware of your industry's health and safety policies?

Yes...0 No...1

3.6. Where do you usually go when you are ill?

3.7. What type of water do you get access to?

Unimproved...0 Improved...1

3.8. Do you get proper/hygienic restroom facilities?

Yes...0 No...1

3.9. Does the company provide you health insurance?

Yes...0 No...1

3.10. Do you get off days?

Yes...0 No...1

If yes, how many days?

3.11. How many days of sick leave do you get in a year? Is it paid leave?

3.12. What do you think is the most common health issue faced by your co-workers?

3.13. What do you think is necessary for maintaining/improving the health status of workers in the industry?

Section 4: Safety

4.1. Are you aware of the products produced and raw materials used by your industry?

Yes...0 No...1

4.2. Were you given any safety briefings or trainings before you started working?

Yes...0 No...1

If yes, how long?

4.3. Do you think those workshops, briefings and trainings help you prevent accidents/ maintain safety while working?

Yes...0 No...1

4.4. Have you ever met any accidents in your work sites?

Yes...0 No...1

If yes, how many times?

4.5. Were emergency health services available?

Yes, it was provided...0 No, it was not provided...1

If yes, were you satisfied with the services?

Yes...0 No...1

4.6. Do you use safety equipments for your work?

Yes...0 No...1

If yes, what type?

4.7. Is the given safety equipments enough to protect you from the physical harm that you may encounter?

Yes...0 No...1

4.8. How frequently does your industry arrange safety awareness programs?

Never...0 Rarely...1 Once in a while...2 Regularly...3 Every 5 years...4

4.9. Are there timely labour inspections to ensure that the safety protocols are being implemented in the industries?

Yes...0 No...1

4.10. Does the industry have a formal system for the reporting, recording and investigating the accidents that takes place in the work site?

Yes...0 No...1

4.11. What is the most common type of accidents faced by your co-workers?

4.12. On a scale of 1-5, how would you rate your company's safety management?
Very weak...0 Weak...1 Average...2 Good...3 Very good...4

4.13. What do you think is necessary for maintaining/improving the safety management of workers in the industry?

4.14. What does a good health status and safety management mean to you?

For Industry Management Workers

Section 1: Identification

Participant no:

Date:

Interviewer Name:

Signature:

Consent

Do you agree to participate in this interview? 1=Yes 2=No

Section 2: Demographic Characteristics of Participants

2.1. Sex: Male...0 Female...1 Other...2

2.2. Age: Years

2.3. Education Level:

No school-1: Primary level-2: Secondary level-3: Higher Education-4:

2.4. Designation/ Department:

2.5. No. of years worked in the industry:

Section 3: Health

3.1. Do you provide health briefings or trainings to the workers?

Yes...0 No...1

3.2. What are the most common health issues faced by the workers?

3.3. Do you take into consideration the medical history of workers before hiring them and the implications of workplace environment on their health?

Yes...0 No...1

3.4. Do you provide health insurance to your workers?

Yes...0 No...1

If yes, how much/ what type?

3.5. Do you provide proper/hygienic restroom facilities?

Yes...0 No...1

If yes, how many restrooms do you have?

3.6. What kind of water do you provide to your workers?

Unimproved...0 Improved...1

3.7. What are the basic health facilities provided to the workers?

3.8. Do you hold timely feedback sessions and work on the health issues that concern your workers?

Yes...0 No...1

3.9. What are the challenges faced by the management in providing better health facilities for the workers?

Section 4: Safety

4.1. Do you provide safety briefings or trainings to the workers?

Yes...0 No...1

4.2. How effective do you think are these training sessions?

Not at all...0 Little...1 Average...2 Effective...3 Very effective...4

4.3. What are the common dangers faced by workers at the workplace?

4.4. What is the most common type of accidents encountered by the workers in the workplace?

4.5. How many accidents occur over the span of a year?

4.6. Do you provide emergency health services to the workers during accidents?

Yes...0 No...1

4.7. Does the industry have a formal system for the reporting, recording and investigating the accidents that takes place in the work site?

Yes...0 No...1

4.8. On a scale of 1-5, how would you rate your company's safety management?

Very weak...0 Weak...1 Average...2 Good...3 Very good...4

4.9. Are there timely labour inspections to insure that the safety protocols are being implemented in the industries?

Yes...0 No...1

If yes, do you make the required changes/improvements for maximized safety?

Yes...0 No...1

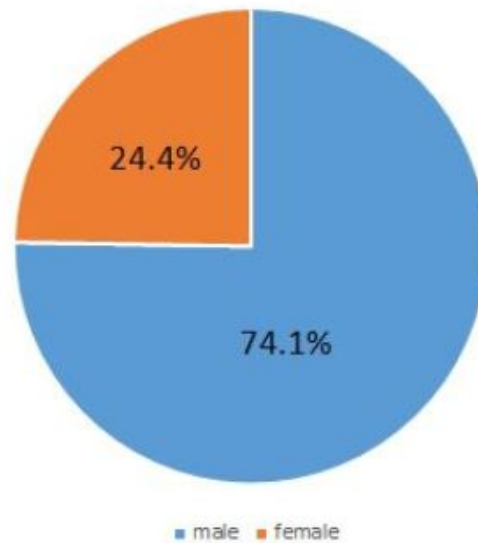
4.10. What do you think is necessary for maintaining/improving the safety management of workers in the industry?

4.11. What are the challenges faced by the management in providing better safety management for the workers?

4.12. What does a good health status and safety management mean to you?

Findings

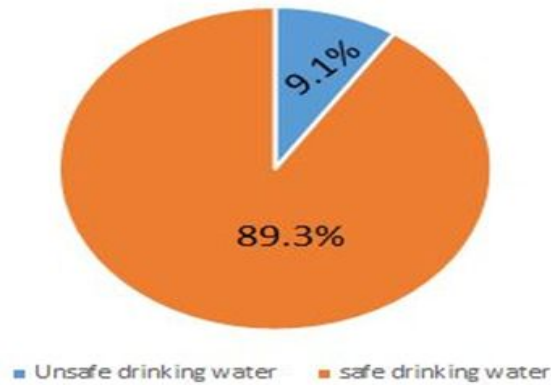
Frequency of male and female



Pie Chart 1. Frequency of male and female

24.4% of the total participants are female and 74.1% are male. This shows that the number of female workers in the industrial sector is far less compared to male workers which may be due to the heavy manual labor involved in the industries.

Type of drinking water available



Pie chart 2. Type of drinking water available

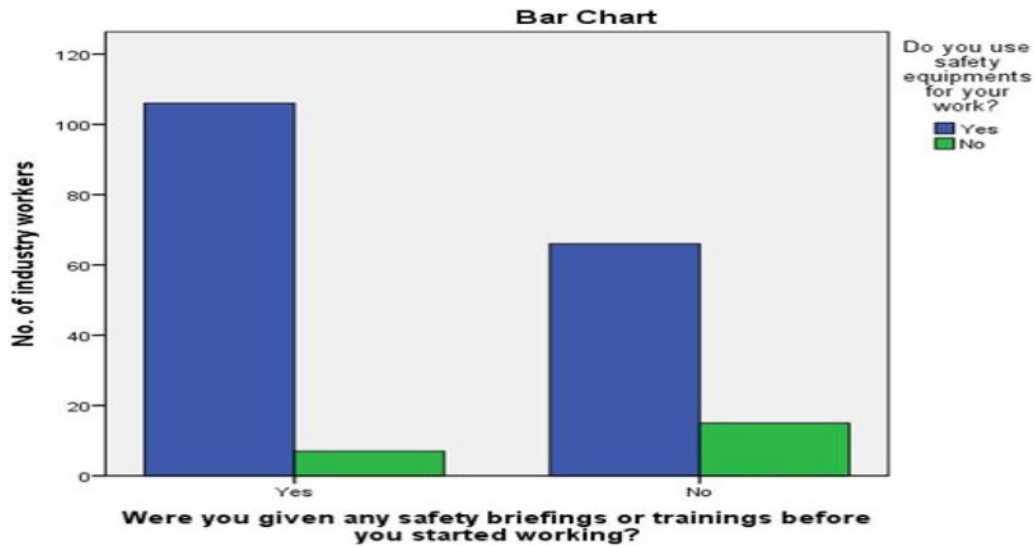
Pie Chart 2 shows the type of drinking water the industries provide for their workers. The Pie Chart 2 shows that out of all the industries that we visited, 89.3% of industries provided safe drinking water whereas 9.1% were provided with unsafe drinking water.

Age of Participants

		Age
N	Valid	188
	Missing	9
Mean		32.33
Range		51
Minimum		17
Maximum		68

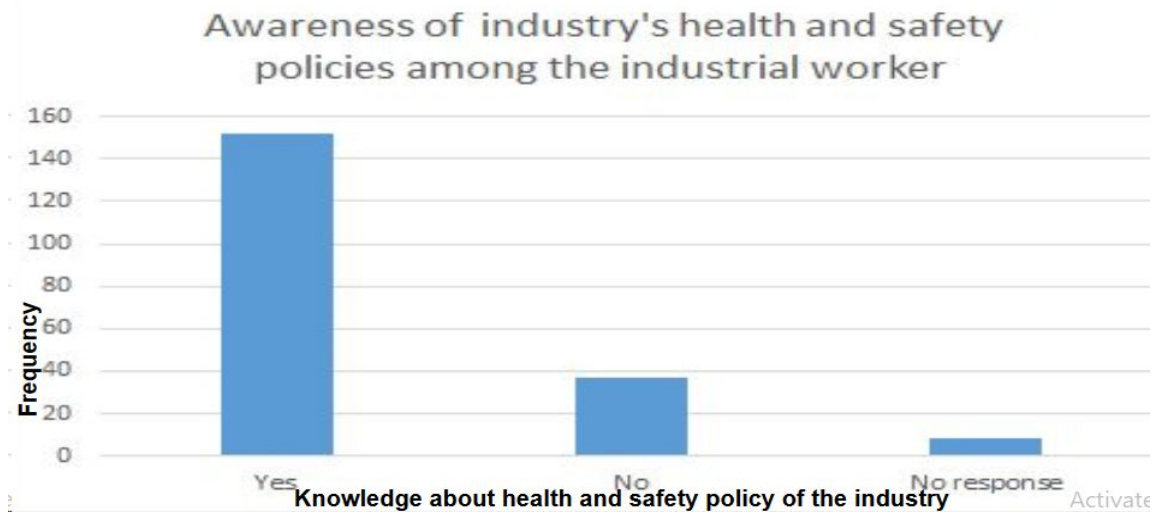
Table 1. Age of Participants

Table 1 shows the average age of the total participants '32.33', the youngest participant of the study was 17 years old and the oldest one was 68.



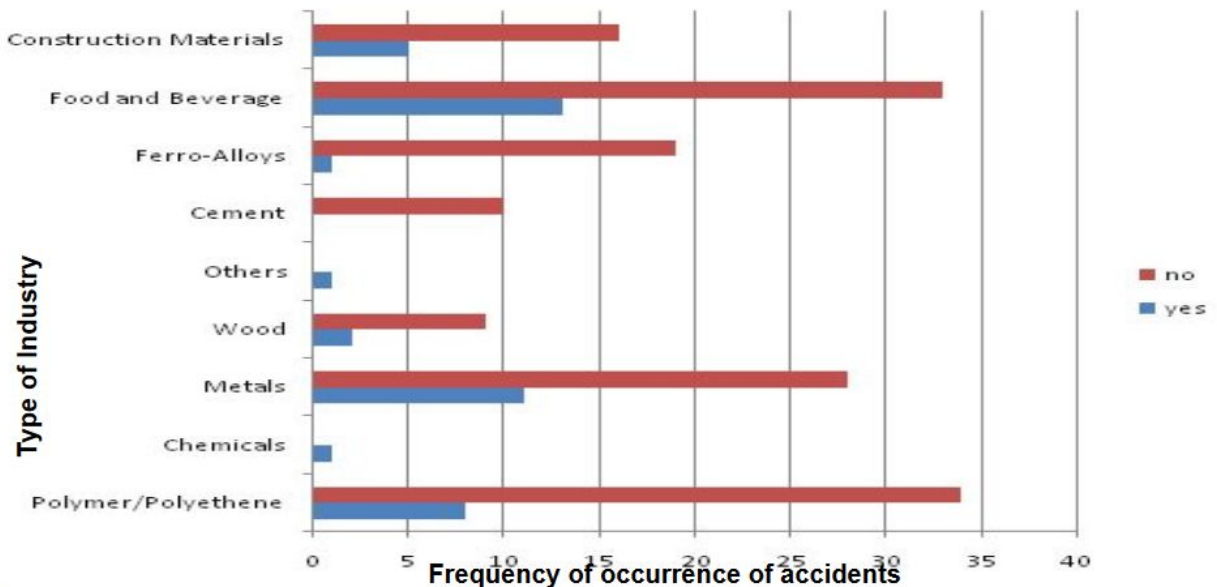
Bar Chart 1. Relationship between safety knowledge and usage of safety equipments

The left section of the bar chart shows that the workers were given safety briefings before joining the industries and the right side shows that the industrial workers were not provided with any. The first bar shows that more than 100 industrial workers had knowledge about the safety equipments and policies and still uses the equipments as instructed but the workers who did not use the equipments even after being provided with the briefings persisted as shown by the second bar. The bar shows that in the industries where no briefings were given , the workers had access to the safety equipments.



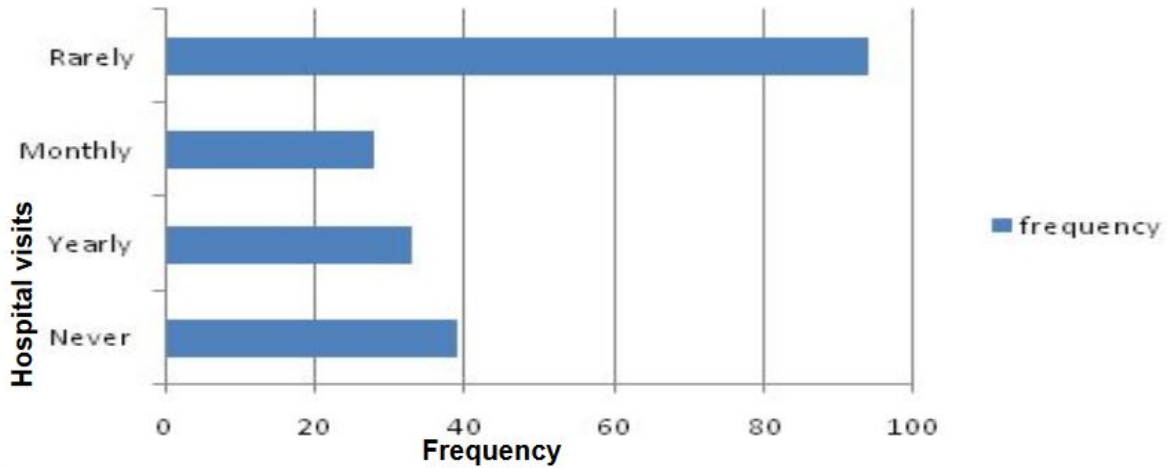
Bar Chart 2. Knowledge about health and safety policy of the industry

Bar chart 2 shows the awareness of industry health and safety policies among the industrial workers. More than 140 workers said that they were aware about the health and safety policies while less than 40 workers were not aware about it and the bar chart also showed persistence of workers who preferred not to answer.



Bar Chart 3. Frequency of occurrence of accidents in different types of industries

The above Bar Chart 3 shows the frequency of accidents that occurred in the different kind of industries that we visited. The highest number of accidents were seen in Food and Beverages Industries while Polymer/Polyethene Industries had the least number.



Bar Chart 4. Frequency of hospital visits after joining the industry

Bar Chart 4 shows the frequency of hospital visits made by the workers after joining the industries.

Analysis

From the Pie Chart 2, we can infer that most of the industries provide safe drinking water to their employees. The industries that provide unsafe drinking water was only 9.1% which is comparatively very low but we believe that the percentage should not be ignored. It is because unsafe drinking water may give rise to water-borne diseases like diarrhea, cholera and various kinds of skin diseases which may be contagious and even fatal in nature. This may lead to decrease in work efficiency due to the decrease in overall health status of the workers.

The growing numbers of industries in the country demands for better health and safety management. With this demand in process, various companies have provided their workers with

equipments and policies to create a safe and healthy environment for its worker. Even with such policies installed in companies, our results as shown in the figure (Bar Chart 2) that almost 38% of the workers were not aware about the policies. Some of the findings (Bar chart 1) also showed that even among the workers who had knowledge about the policies and the safety instructions, they still avoided or preferred not to use the safety equipments. Hence looking at the above results, the companies needs to look into the matter of why the workers are not paying attention on the importance of the using the safety equipments. For the better spread of information regarding the health and safety management among the industrial workers, the companies and the government can collaborate with other competing agencies and work on this issue using different methods.

The average age of the total participants '32.33', the youngest participant of the study was 17 years old and the oldest one was 68. And this extreme value which was higher than the age of the other participants, identified as an outlier which affected the mean of the age of the participant participating in the study, giving '32.33' as the average age. Further through this study one could see that the working population of the country (i.e 15- 65) is actively indulged as industrial workers in different industries that were surveyed.

It is reported that there is a higher prevalence of occupational hazards in food and beverage industries comparatively to other industries that we researched on. Around 12 people reported that there is frequent occurrence of accidents in their food and beverage industries. According to a study conducted to estimate occupational illness, injury, and mortality in food production in the United States found that The morbidity rate for food system industries were significantly higher than the morbidity rate for non-food system industries (Newman,Leon&Newman). The problems

listed in the HSE in food and beverage industries are manual handling, food processing machinery and packaging machinery. Further listed problems in the food and beverage industries were listed as assessing and control of sensitizing and nuisance dusts, workplace noise assessments in food production facilities, hazards from chemicals and gases and thermal environment surveys. These results are similar to our results as the food and beverage industry has to deal hygiene issues as well.

Our result showed that the number of hospital visits was minimally less compared to the ones who visited. This may be due to the availability of emergency first aid facilities within the industrial premises or due to the reluctance of the industrial worker to visit hospital which are far from where they work and reside.

Limitations

Due to financial constraints and lack of funds for the research, extensive research was not possible. As a result of the research not being extensive, the sample size of the industries is smaller and the research may not be able to cover all health and safety related issues of the population of industries. As the research does not take the gender of the industry workers into consideration, gender disparities may go unnoticed or ignored. This research is done on the general population of industry workers rather than specifically focusing on different genders. But this also provides grounds for further research to be conducted on the particular topic. Due to the limited time, the research could not cover all dimensions of the WHO definition of a good health status and safety management of a worker, such as ‘social protection, psychosocial hazards’. We used the top-down approach for the survey therefore, there might have been possibilities of

participants giving biased answers/ unanswered questions due to authorities present while surveying.

Recommendations for the Industries

The MoLHR should properly monitor that minors are not working in heavy machinery industrial areas. Industry management should ensure that accidents are investigated and fully taken responsibility of (medical cost, sick leave payment). Formulation of policies and awareness programs for strict usage of safety equipment to minimize accidents by the MoLHR and industry management. The Industry Management should also provide monthly health check-ups, safe drinking water for industry workers to ensure maximum productivity.

Conclusion

From our findings we can conclude that though industries play a vital role in Bhutan's economy, the industries are yet to fully implement worker friendly policies and environment. We observed a relatively high number of work related accidents in the industries in response to fewer safety briefings being provided. The industries should focus more on health and safety of their employees for maximum output because healthy and safe workers yield better quality results.

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