

Statutory Provisions of Employees Health and Safety Measures of Food Industry with Special Reference to Bakery Foods, Madurai, Tamilnadu

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Abstract:

The health of corporate India has taken a dump over the last era owed to their inactive lifestyle, growing work pressures, and lack of harmony between personal and professional lives, among other reasons. As revealed in a 2016 study, one out of every two employees in the country suffers from stress while 43 percent of them have skewed BMI. It was found that a large proportion of people in the corporate sector face the risk of diabetes, hypertension, and other lifestyle-related disorders. In this study the researcher collected 135 samples with non-probability sampling about the statutory provisions of employees health and safety measures adopted in foods industry with special reference to bakery industry in Madurai and to find out the satisfaction level of the respondents towards health and safety measures. By Chi - Square Analysis the researcher found that there is a relationship between the awareness of workers and the Health and safety training and there is no relationship existing between the effective disciplinary procedures and safe working environment. By Correlation, since the correlation value is 0.813, there is a high degree of positive relationship that exists between the maintenance of machines and the accidents happened. By Spearman's Rank Correlation, since the correlation value is 0.875, the relationship that exists between the health check-up provided and stress towards work is good. By Anova, there is a significant difference existing between the health and safety measures provided to the workers.

Keywords: Statutory provisions, Health, Safety measures.

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1. Introduction

Due to rapid development, industrial workers are wide-open to several types of threats and accidents. So in current years, more attention is given to health and safety due to pressure from government, trade unions, labor laws and awareness of employers. Every industry should aim in maintenance of the highest degree of physical, mental and social comfort of workers in all occupations. Every industry should protect the workers in their employment from risks resulting from factors opposing to health. According to factories Act, 1948, there are different statutory provisions regarding the health of the workers. In this study the researcher studied about the statutory provisions of health and safety measures like Cleanliness (sec 11), Disposal of wastes and effluents

(sec 12), Ventilation and temperature (sec 13), Removal of Dust and fumes (sec 14), Lighting (sec 17), Drinking water (sec 18), Toilet facilities (sec 19) were studied.

Objectives of the Study

- To ascertain the statutory provisions on the health and safety measures of the employees adopted in foods industry with special reference to bakery industry in Madurai
- To find out the satisfaction level of the respondents towards health and safety measures.
- To give suggestions to improve the health and safety in the organization.

Research Methodology

This study is conducted by collecting primary data using 135 interview schedule questionnaires, each consist of 26 questions. Non-probability sampling design based on convenient sampling method has been used for this research study. The secondary data was collected from the newspapers, journals, magazines, internet etc. All the questions are closed ended questions and almost all questions were directive. The Statistical Tools Used by the researcher is Chi-square analysis, Correlation, Spearman's rank correlation and Anova.

Data Analysis and Interpretation

Chi-Square Analysis

1. Analysis between awareness of workers and Health and safety training.

Null hypothesis (H₀): There is a relationship existing between the awareness of workers and the Health and safety training.

Alternative hypothesis (H₁): There is no relationship existing between the awareness of workers and the Health and safety training.

Table showing the awareness of workers and health and safety training.

		Yes	No	Total
Number of Respondents	WORKERS HEALTH	63	72	135
	SAFETY TRAININGS	72	63	135
Total		135	135	270

Formula

$\chi^2 = \sum (O_i - E_i)^2 / E_i$ Where,
 O = Observed Frequency
 E = Expected Frequency = $\frac{\text{Row Total} \times \text{Column Total}}{\text{Grand Total}}$
 i = 1, 2, 3.....n

Table showing the effective disciplinary procedures and protected working environment.

Number of Respondents	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
	76	59	0	0	0	135
	54	45	36	0	0	135
Total	130	104	36	0	0	270

Formula

$\chi^2 = \sum (O_i - E_i)^2 / E_i$

Table showing the analysis between awareness of workers and health and safety training.

O _i	E _i	(O _i - E _i)	(O _i - E _i) ²	(O _i - E _i) ² / E _i
63	67.5	-4.5	20.25	0.3
72	67.5	4.5	20.25	0.3
72	67.5	4.5	20.25	0.3
63	67.5	-4.5	20.25	0.3
Total				1.2

Degree of freedom

= (r - 1) (c - 1)
 = (2-1) (2-1)
 = 1

χ^2 Table value at 5% Level of significance = 3.841

χ^2 Calculated value = 1.2

$\chi^2_{cv} < \chi^2_{rv}$

So, H₀ is accepted, H₁ is rejected.

Inference

Hence, there is a relationship between the awareness of workers and the Health and safety training.

2. Analysis between effective disciplinary procedures and safe work environment.

Null hypothesis (H₀): There is a relationship existing between the effective disciplinary procedures and safe working environment.

Alternative hypothesis (H₁): There is no relationship existing between the effective disciplinary procedures and safe working environment.

Where,

O = Observed Frequency

E = Expected Frequency = $\frac{\text{Row Total} \times \text{Column Total}}{\text{Total}}$

Grand Total

14	27	196	729	378
0	0	0	0	0
135	135	7097	7835	6739

Formula

$$r = \frac{(N \sum xy - \sum x \sum y)}{\sqrt{(N \sum x^2 - (\sum x)^2)} \sqrt{(N \sum y^2 - (\sum y)^2)}}$$

$$= \frac{5(6739) - (135)(135)}{\sqrt{(5(7097) - (18225))} \sqrt{(5(7835) - (18225))}}$$

$$= 0.813$$

Inference

Correlation for the maintenance of machines and the accidents happened.	VALUE	RESULT
	0.813	GOOD

Spearman's Rank Correlation

Analysis between the health check-up provided and stress towards work.

X - Health check-up provided.

Y - Stress towards work.

Table showing the analysis between the health check-up provided and stress towards work.

X	Y	R1	R2	D = R1 - R2	D ²
0	9	4.5	3.5	1	1
32	45	2	2	0	0
94	72	1	1	0	0
9	9	3	3.5	-0.5	0.25
0	0	4.5	5	-0.5	0.25
TOTAL					1.5

Formula

When the ranks are equal,

$$r = 1 - \frac{6(\sum D^2 + 1/12(m^3 - m) + \dots)}{N(N^2 - 1)}$$

N = Number of values in a group.

m = Number of times a value is repeated.

Therefore,

$$r = 1 - \frac{6(1.5 + 1/12(2^3 - 2) + 1/12(2^3 - 2))}{5(5^2 - 1)}$$

$$= 1 - 0.125$$

$$= 0.875$$

Inference

i = 1, 2, 3.....n

Table showing the analysis between effective disciplinary procedures and protected working environment.

O _i	E _i	(O _i - E _i)	(O _i - E _i) ²	(O _i - E _i) ² / E _i
76	65	11	121	1.861
59	52	7	49	0.942
0	18	-18	324	18
0	0	0	0	0
0	0	0	0	0
54	65	-11	121	1.861
45	52	-7	49	0.942
36	18	18	324	18
0	0	0	0	0
0	0	0	0	0
Total				41.606

Degree of freedom

$$= (r - 1) (c - 1)$$

$$= (2-1) (5-1)$$

$$= 4$$

χ^2 Table value at 5% Level of significance = 9.488

χ^2 Calculated value = 41.606

$\chi^2_{cv} > \chi^2_{TV}$

So, H₀ is rejected, H₁ is accepted.

Inference

Hence, there is no relationship existing between the effective disciplinary procedures and safe working environment.

Correlation Analysis

Analysis between the maintenance of machines and the accidents happened.

X - Maintenance of machines.

Y - Accidents happened.

Table showing the analysis between the maintenance of machines and the accidents happened.

X	Y	X ²	Y ²	XY
4	4	16	16	16
54	23	2916	529	1242
63	81	3969	6561	5103

Health check-up provided and stress towards work.	VALUE	RESULT
	0.875	GOOD

Anova
Analys
is

between the health and safety measures provided to the workers.

Null hypothesis (H_0): There is no significant difference existing between the health and safety measures provided to the workers.

MEASURES	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	TOTAL	TOTAL
First-Aid	113	22	0	0	0	135	13253
Temperature	32	103	0	0	0	135	11633
Enough space	22	81	32	0	0	135	8069
Maintaining latrines, urinals	22	77	36	0	0	135	7709
Training before handling machines	63	50	22	0	0	135	6953
TOTAL	252	333	90	0	0		
TOTAL	18730	26083	2804	0	0	675	47617

Table showing the number of respondents and the workings.

Alternative hypothesis (H_1): There is a significant difference existing between the health and safety measures provided to the workers.

1. Correction factor = $(T_1)^2 / n = (675)^2 / 25 = 18225$

2. Sum of the squares of columns

$$SSC = \sum (C_j)^2 / R - CF$$

$$= [(252)^2 / 5 + (333)^2 / 5 + (90)^2 / 5 + (0)^2 / 5 + (0)^2 / 5] - 18225$$

$$= 18274$$

Degree of freedom = $C - 1$

$$= 5 - 1$$

$$= 4$$

3. Sum of the squares of total

$$SST = T_2 - CF$$

$$= 47617 - 18225$$

$$= 29392$$

4. Sum of the squares of residual error:

$$SSE = SST - SSC$$

$$= 29392 - 18274$$

$$= 11118$$

Degree of freedom = $C (R - 1)$

$$= 5 (5 - 1)$$

$$= 5 * 4$$

$$= 20$$

Sources of variation	Sum of squares	Degree of freedom	Mean sum of squares
Between columns	18274	4	4568.5
Residual error	11118	20	556
Total	29392	24	

Table showing the analysis of variance.

F calculated value = $4568.5 / 556 = 8.217$

Degree of freedom (4, 20) and Level of significance = 5%

F table value = 2.87

$F_{cal} < F_{tab} = H_0$ is accepted

Here, the calculated value is greater than the table value. Hence we reject the null hypothesis (H_0) and accept the alternative hypothesis (H_1).

Inference

There is a significant difference existing between the health and safety measures provided to the workers.

Finding of the Study

Percentage Analysis

- 53% of the respondents are having the age limit of 31 – 35 years and 20% of the respondents are falls between the age limit of 36 – 40 years.
- 53% of the respondents respond that they are not aware of the health and safety measures and only 47% of the respondents are aware of the health and safety measures.
- 64% of the respondents say that they have no effective arrangements for communicating health and safety matters; only 36% agrees that they have effective arrangements for communicating health and safety matters.
- 53% of the respondents say that the company is providing medical facilities but 47% of the

respondents respond that the company is not providing medical facilities to the workers.

- 53% of the respondents respond that they attended the health and safety training programme conducted in the company.
- 56% of the respondents respond that the training is offered once in 3 years and 20% of the respondents say that the training is offered yearly once.
- 50% of the respondents respond that sometimes they have proper drinking water and 33% of the respondents says often they have proper drinking water and 10% of the respondents say that always they have proper drinking water and 7% of the respondents says rarely they have proper drinking water facility inside the work place.
- 53% of the respondents says often they have stress and 33% of the respondents respond that sometimes they have stress and 7% of the respondents say that always they have stress and only 7% of the respondents says rarely they have stress towards work.
- 84% of the respondents strongly agree that they are aware about the first aid activities and contents of the first aid kit and 16% of the respondents simply agree that they are aware about the first aid activities and contents of the first aid kit.
- 56% of the respondents strongly agree that the company implements effective disciplinary procedures and 44% of the respondents simply agree that the company implements effective disciplinary procedures.
- 76% of the respondents simply agree that the working temperature is reasonable to work and 24% of the respondents strongly agree that the working temperature is reasonable to work.
- 60% of the respondents simply agree that they have enough space to work and 24% of the respondents have no idea about the overcrowding and 16% of the respondents strongly agree that they have enough space to work.
- 57% of the respondents simply agree that the latrines and urinals are cleaned and maintained properly and 27% of the respondents have no idea about the maintenance of latrines and urinals and 16% of the respondents strongly agree that the latrines and urinals are cleaned and maintained properly.
- 40% of the respondents strongly agree that their environment is safe to work and 33% of the respondents simply agree that their environment is safe to work and 27% of the respondents say that they have no idea about the safe working environment.
- 47% of the respondents strongly agree that enough training is given to the workers and 37% of the respondents simply agree that enough training is given to the workers and 16% of the respondents say that they have no idea about enough the training given to the workers.
- 69% of the respondents respond that the company provides health check-up quarterly and 24% of the respondents say that the company provides health check-up half yearly and 7% of the respondents say that the company provides health check-up monthly.
- 47% of the respondents says often they are maintaining the machines properly and 40% of the respondents respond that sometimes they are maintaining the machines properly and only 10% of the respondents says rarely they are maintaining the machines properly and 3% of the respondents say that always they are maintaining the machines properly.
- 60% of the respondents say often the accidents are happened and 20% of the respondents say rarely the accidents are happened and 17% of the respondents respond that sometimes the accidents are happened and only 3% of the respondents say that always the accidents are happened.
- 47% of the respondents ranked electric shocks are happened and 37% of the respondents ranked finger injuries are occurred and 13% of the respondents ranked fire accidents are happened and only 3% of the respondents ranked fallen from height are occurred.
- 73% of the respondents say that the company is providing safety requirements for work but 27% of the respondents respond that the company is not providing any safety requirements for work.
- 69% of the respondents say that the safety committee is not formed in the company and only 31% of the respondents respond that the safety committee is formed in the company.
- 67% of the respondents respond that the safety inspections are held monthly once and 20% of the respondents say that the safety inspections are held yearly once and 13% of the respondents say that the safety inspections are held weekly once.
- 50% of the respondents say that the role of management is better and 40% of the respondents say that the role of management is best and 10% of the respondents respond that the role of management in implementing health and safety is good.

Statistical Analysis

Chi - Square Analysis

- There is a relationship between the awareness of workers and the Health and safety training.
- There is no relationship existing between the effective disciplinary procedures and safe working environment.

Correlation

- Since the correlation value is 0.813, there is a high degree of positive relationship that exists between the maintenance of machines and the accidents happened.

Spearman's Rank Correlation

- Since the correlation value is 0.875, the relationship that exists between the health check-up provided and stress towards work is good.

Anova

- There is a significant difference existing between the health and safety measures provided to the workers.

Suggestions of the Study

The company has to create the awareness for the workers regarding health and safety and they have to provide effective arrangements to the workers for communicating their health and safety matters. It is better to provide frequent health and safety training like avoiding accidents, at least once in a year. Orientation programs can be conducted to make the workers to feel that their work environment is safe to work. The company has to provide enough drinking water facility available at all the time and has to take necessary steps to reduce the stress level of the workers. The maintenance department has to maintain the machines properly to reduce lead-time. Meditation practices can be given to avoid electric shocks, finger injuries etc. due to lack of concentration. Safety committee has to be formed to monitor the health and safety issues and has to conduct the regular inspections to ensure higher level of safety in the workplace. Cordial relationship has to be maintained between the management and the workers to implement the health and safety policies and measures in a smooth manner.

Conclusion

It is revealed from the study that, the health and safety measures adopted in bakery food in Madurai are provided to the workers according to the provisions of the factories act. It reveals that the awareness of the workers about health and safety in the workplace is inadequate. Also repeated accidents like

electric shocks, finger injuries are occurred in the workplace Suitable ideas were suggested to avoid those accidents and to improve the health and safety measures. The role of management in implementing health and safety in the organization is very effective.

Most of the workers were satisfied with the health and safety measures adopted in the company. If the company implements effective disciplinary procedures; it will help the company to go with their policies and also to maintain health and safety in the organization.

References

1. www.humanresources.about.com
2. www.ilo.com
3. www.britannica.com
4. <http://www.ncbi.nlm.nih.gov/pubmed/20106469>
5. http://journals.lww.com/joem/Abstract/2009/09000/A_Systematic_Review_of_Occupational_Health_and.6.aspx
6. <http://www.ehjournal.net/content/8/1/47>
7. <http://jech.bmj.com/content/63/7/521.abstract>
8. <http://www.emeraldinsight.com/Insight/viewContentItem.do?jsessionid=9F2CDBC6B5111CA6756D2D26B9121610?contentType=Article&contentId=1718276>
9. <http://www.emeraldinsight.com/Insight/viewContentItem.do?contentType=Article&contentId=1728145>
10. http://jech.bmj.com/content/61/Suppl_2/ii39.abstract
11. <http://occmcd.oxfordjournals.org/cgi/content/abstract/57/6/449>
12. <http://oem.bmj.com/content/63/9/608.abstract>
13. <http://oem.bmj.com/content/60/1/43.abstract>
14. <http://jech.bmj.com/content/55/5/316.abstract>
15. <http://www.monash.edu.au/muarc/reports/muarc166.html>