Original Research Article

Impact of Work Experience on the Level of Awareness of Construction Workers on Using Personal Protective Equipment

Abstract

This study determined the level of awareness of the construction workers in the province of Northern Samar on using the personal protective equipment as well the relationship between the level of awareness and the length of construction experience and support of the company management on safety aspect of the construction workers.

The construction workers' ages are of ranges from below 18 to above 60 years old. Majority is of ages from 18 to 30 years old (46%), next is of ages 31 to 40 years of age (30%), then 41 to 50 years old (14%), then below 18 years old (9%) and last is of ages above 60 years old (1%). All respondents are male and mostly, are married (61%). Some are single (38%) and widow (1%). The construction workers experienced as foreman (9%), as Leadman (2%), skilled (31%), semi-skilled (16%) and mostly as Labor (42%).

By Spearman's Rho correlation the relationship of the length of experience and so with the company's safety management and the level of awareness on using PPE are determined. The identified variables are highly correlated with the level of awareness on using PPE. Based on the analysis, these construction workers are moderately aware on account of their work experiences.

Keywords: safety orientation, construction safety, occupational safety, company safety management

Introduction

According to Biswas et al (2017), developing countries have no strict regulation or no strict practicing of construction safety where both authorities and employees don't aware of construction safety issue. Moreover, the prevention of unnecessary death, disability and injury for construction workers is a societal responsibility (Mamin et al, 2019).

In an integrated survey on labor and employment by the Philippine Statistics Authority (PSA) reported that in 2015, the number of cases of occupational injuries was 2,115. And the incident rate or cases of occupational injuries with workdays lost per 1,000 was 8.34%. The use of personal protective equipment is one of the important measures to safeguard the safety of the labor workers from exposure to occupational hazards. This data may increase because of the ambitious infrastructure program of Pres. Duterte, the BUILD,

BUILD, BUILD if the safety of the construction workers will not be stressed by the employers and with the cooperation of the construction workers themselves.

The Labor Code of the Philippines provides that every employer shall provide his workers with protective equipment for the eyes, face, hands and feet, protective shields and barriers whenever necessary by the reason of the hazardous nature of the process or the environment capable of causing injury or impairment in the function of any parts. And also, Department of Labor and Employment Department Order 13 s 1998 mandated every employer, at his own expense, provide his workers with protective equipment for eyes, face, hands and feet, lifeline, safety belt/harness, protective shields and barriers whenever necessary by reason of the hazardous work process or environment, chemical or radiological or other mechanical irritants or hazards capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical agent.

According to Keng and Razak (2014) several major problems are encountered in the construction sites in Malaysia due to ignorance of workers among others is lack of awareness on safety practices. Tam and Fung (2008) also found out that awareness and understanding of the health and safety hazards is insufficient.

Awareness on using safety equipment depends on some factors according to Ulang et al (2014) such as the worker's age, worker's working experience, worker's citizenship, worker's ownership of Green Card and stressing on safety among the workers by employer. However, in the surveillance conducted in their study, it was found out that it is difficult to ensure either the workers have knowledge of the PPE awareness while working or not. There is possibility according to them, that workers just worn their PPE when instructed by the Health and Safety Officer or from authorities who visited. When surveillance and monitoring does not carried out, they discriminately violate the regulations, they are not wearing PPE during working.

In the study conducted by Keng and Razak (2014) several strategies have been suggested to overcome such problems such as to provide effective safety training, allocation of budget for safety management, full commitment from the top management, and to provide safety booklets in various languages. Tam and Fung (2008) said that lack of training on health and safety which would make the workers more vulnerable to illness and consequently, low and health and safety performance.

This study generally aimed to know the level of awareness of the construction workers in the province of Northern Samar on using the personal protective equipment in relation to their length of construction experience with the corresponding work classification such as foreman, leadman, skilled worker, semi-skilled worker or laborer, and whether or not the company has provision to provide PPE. Level of awareness should be determined

because accordingly, source problem identification is the first step in safety management (Jaafar et al, 2017).

Methodology

A survey questionnaires were disseminated to construction workers employed in different construction companies in the province of Northern Samar. Among the data gathered were age, education background, work experiences whether as a foreman, leadman, skilled, semi-skilled and labor. Information whether the company conducted safety orientation, has a financial allocation on safety management and provided PPE to their construction workers are also solicited and correlational analysis was to determine their relationship. Spearman's Rho correlation was used to determine the relationship of the work experiences and the level of awareness on using personal protective equipment as well as the company safety management.

Results

Construction workers of the province ranges from below 18 to above 60 years old. As shown in Table 1, majority are of ages from 18 to 30 years old (38%), next is of ages 31 to 40 years of age (30%), then 41 to 50 years old (13%), next is 51 to 60 years old (9%) and those below 18 years old (9%), and the least are those above 60 years old (1%). All of the respondents are male.

Table 1 also indicates the marital status of the respondents. It is comprised of married (61%), single (38%) and widow (1%) construction workers. Table 2 indicates the length of work experience of the construction workers are divided into ranges: Less than 1 year; 1 to 5 years; 6 to 10 years; 11 to 15 years; 16 to 20 years; 21 to 25 years; 26 to 30 years; and above 30 years. They are also categorized according to their classifications: Foreman, Leadman; skilled; semi-skilled and laborer.

Table 1. Demographic Profile of Respondents

Demographic Characteristics	Frequency	Percentage
Age		
Less than 18 years old	18	9%
18 to 30 years old	73	38%
31 to 40 years old	58	30%
41 to 50 years old	25	13%
51 to 60 years old	17	9%
Above 60 years old	1	1%

Sex		
Male	192	100%
Female	0	0%
Marital Status		
Single	73	38%
Married	117	61%
Widow	2	1%

As to the length of experiences of respondents as construction foreman, as shown in Table 2, only 1 has been for more than 30 years and most of them have experience ranging from 1 to 5 years. As leadman, the respondent's experience, 80% have experiences only up to 5 years. Mostly skilled workers' length of experience ranges from 6 to 10 (42%) and on 1 to 5 years (25%). For semi-skilled and laborers generally ranges for a year to 10 years of work experience.

As construction foreman, majority of them has experienced 1 to 5 years (41%), then followed by less than one year (17%) and then 6 to 10 years and 26 to 30 years which both comprises of 12%. Length of experience ranging 11 to 15 years, 21 to 25 years and above 30 years are all of 6% while no one fell in the range of 16 to 20 years.

For experience as leadman, the ranges of duration are dominated by 1 to 5 years which is 80% and the 20% from 16 to 20 years. For skilled worker experience, the categories are all filled up: less than 1 year, 8%; 1 to 5 years, 25%; 6 to 10 years, 42%; 11 to 15 years, 12%; 16 to 20 years, 5%; 21 to 25 years, 3%; 26 to 30 years, 2% and above 30 years, 2%.

The semi-skilled experience falls only to 5 categories of length of duration. The 62% of the fall in range 1 to 5 years, then 16% are for less than 1 year and 6 to 10 years and 3% for both 11 to 15 years and 26 to 30 years.

The survey was dominated by labor which have a worker experiences in 4 ranges of duration: 37% for less than 1 year; 59% for 1 to 5 years; and 4% for 6 to 10 years.

Table 2. Respondent's Work Experiences

Work Classification	Frequency	Percentage
As Foreman	17	9%
Less than 1 year	3	17%
1 to 5 years	7	41%
6 to 10 years	2	12%
11 to 15 years	1	6%
16 to 20 years	0	0%

21 to 25 years	1	6%	
26 to 30 years	2	12%	
Above 30 years	1	6%	
As Leadman	5		2%
Less than 1 year	0	0%	
1 to 5 years	4	80%	
6 to 10 years	0	0%	
11 to 15 years	0	0%	
16 to 20 years	1	20%	
21 to 25 years	0	0%	
26 to 30 years	0	0%	
Above 30 years	0	0%	
As Skilled Worker	59		31%
Less than 1 year	5	8%	
1 to 5 years	15	25%	
6 to 10 years	25	42%	
11 to 15 years	7	12%	
16 to 20 years	3	5%	
21 to 25 years	2	3%	
26 to 30 years	1	2%	
Above 30 years	1	2%	
As Semi-Skilled	31		16%
Less than 1 year	5	16%	
1 to 5 years	19	62%	
6 to 10 years	5	16%	
11 to 15 years	1	3%	
16 to 20 years	0	0%	
21 to 25 years	0	0%	
26 to 30 years	1	3%	
Above 30 years	0	0%	
As Laborer	80		42%
Less than 1 year	30	37%	
1 to 5 years	47	59%	
6 to 10 years	3	4%	
11 to 15 years	0	0%	
16 to 20 years	0	0%	

21 to 25 years	0	0%
26 to 30 years	0	0%
Above 30 years	0	0%

From Table 3, as to conduct of safety orientation, mostly of the local construction companies conducted before the workers stared to work in the company (50%) or before the start of the daily activities (45%) while only 4% conducted as their Project Engineer and there are companies who conducted only when accident happened (1%).

Table 3. Company Safety Management

Safety Management Strategy	Frequency	Percentage
A. Schedule of Conduct		
Conducted before the workers started to work in the company.	96	50%
Conducted daily before the start of daily construction activities.	86	45%
Conducted only when the Project Engineer/Manager finds it necessary.	8	4%
Conducted only after an accident happened.	2	1%
B. Financial Support		
No Allocation	12	6%
With Allocation	180	94%
C. PPE Provision		
No provision	12	6%
Provided to the Workers for free	119	62%
Provided to the Workers with Pay	61	32%

Table 4 shows that 94% of the construction companies where the respondents are working has no financial allocation for safety management and only 4% has said allocation.

Table 4. Financial Allocation on Safety management

Financial Support	Frequency	Percentage
No Allocation	12	6%
With Allocation	180	94%

Majority of the construction workers are provided with personal protective equipment free from the company (62%) while others pay for it (32%) while some pay for that safety

equipment (32%) and, sadly, there are companies with no provision (6%) as indicated in Table 5.

Table 5. Personal Protective Equipment Provision

How the company provided PPE?	Frequency	Percentage
No provision	12	6%
Provided to the Workers for free	119	62%
Provided to the Workers with Pay	61	32%

As indicated in Table 6 the level of awareness based on work experience, as foreman, they are moderately aware while those other work classifications are lowly aware.

Table 6. Level of Awareness and Correlation Coefficients

Demographic Profile	Level of Awareness	*Interpretation	Correlation Coefficient	**Interpretation
A. Work Experiences				
As Foremen	4	Moderately Aware	0.901	Highly Correlated
As Leadman	3	Lowly Aware	0.994	Highly Correlated
As Skilled	3	Lowly Aware	1.000	Highly Correlated
As Semi-Skilled	3	Lowly Aware	0.972	Highly Correlated
As Laborer	3	Lowly Aware	0.982	Highly Correlated
B. Company Safety Management				
Conduct of Safety Orientation	4	Moderately Aware	1.00	Highly Correlated
Financial Allocation	4	Moderately Aware	1.00	Highly Correlated
PPE Provision	4	Moderately Aware	1.00	Highly Correlated

Note:

*3 – Lowly Aware 4 – Moderately Aware 5 – Highly Aware

**Coefficient Interpretation 0 - ±.20 Negligible ± .20 - ±.40 Low ± .40 - ±.60 Moderate ± .60 - ±.80 Substantial ± .80 - ± 1.0 High to Very High (John W. Best & James V. Khan, Research in Education, 1989)

Discussion and Conclusion

The data of this study were from 192 construction workers in the province of Northern Samar, Philippines. Majority of them are of ages of 18 to 40 years. This indicates that employers hired workers of ages having a physical strength and stamina which is demanded by the nature of the work in construction industry. Similar results been found by a study conducted in Malaysia (Ulang et al, 2014) where most of respondents are also young who are below 40 years of age. These data are reflections that construction workers of the province still practicing the traditional family culture that the bread winner of the family is the father. Furthermore, for the reason that the nature of construction works requires masculinity, the respondents are all men.

From the data on work experiences, some laborers did not experience the work of a leadman which impliedly directly promoted to as foreman. As foreman, mostly have experience for only 1 to 5 years and seldom got more than 30 years which may be attributed to the fact that by that time they are aged now short of physical strength that they can no longer to carry on the job. As leadman which comprises only of 2% of the respondents indicating that seldom went through this classification as a construction worker. In the construction site set up, leadman is next to foreman. The 31% of the respondents are skilled workers while only 16% as semi-skilled. When a construction worker developed a skill, mostly claimed to be one then been hired as such. Obvious from the results, the construction industry set up particularly on-site of the project, is dominated by laborers which from the data gathered usually have 1 to 5 years work experience only because as the aged in that industry they developed skill thus be promoted to a higher position in the hierarchy of the construction industry workers classifications.

The above mentioned results affirms the study conducted by Mamin et al (2019) in Bangladesh that using PPE is associated with old age, education, more work experience and health and safety training.

Majority of the constructions company in the province conducted safety orientation before they let they newly hired construction workers start with their job however, there are those company who only conducted such orientation when necessary or after a site accident happened. This is better than what is found out in Bangladesh by Mamin et al (2019) wherein only 12.5% of their respondents received any form of training on health and safety and in Ethiopia where 81.1% of workers had never undergone any workplace safety training (Tadesse et al, 2016).

On financial allocation, almost all the construction company in the province provided fund for safety management for the benefit of their employees and they give their workers PPE for free. This result is contrary to what was found out by Aksorn & Hadikusumo (2007)

on their gap analysis on the factors affecting the improvement of safety programs that sufficient resource allocation is a factor with a poorest actual status.

Based on the results, the construction workers in the province of Northern Samar are moderately aware on using the personal protective equipment and the same is highly correlated with their work of experiences. The approach of the management on their safety program like conduct of safety orientation, financial allocation and provision on PPE is an immense strategy.

Conclusion

The construction company should conduct training on Constructions and Occupational Safety and Health not only for the project engineers and safety officers but mainly for the construction workers. And, an onsite safety orientation for precautionary measures should be incorporated in the tool box meeting. To reduce the number of fatalities and losses experienced in the construction industry as a result of accidents knowledge sharing and construction safety aware is essential (Li, et al, 2019). Safety training is vital to prevent injury and for safety at work (Mamin et al, 2019).

It is highly recommended that each construction worker should be provided with personal protective equipment by the company for their safety and protection.

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