

FACTORS ASSOCIATED WITH THE BEHAVIOR OF PERSONAL PROTECTIVE EQUIPMENT (PPE) IN WORKERS AT HEIGHT AT THE SAVYAVASA LUXURY RESIDENCE PROJECT IN 2023

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ABSTRAK

Bekerja di ketinggian adalah suatu kegiatan atau aktivitas yang dilakukan oleh pekerja pada suatu tempat kerja pada permukaan tanah atau air yang terdapat perbedaan ketinggian dan berpotensi terjatuh yang dapat menyebabkan pekerja atau orang lain di tempat kerja tersebut mengalami cedera atau meninggal dunia. Kecelakaan kerja yang melibatkan ketinggian mengakibatkan kematian 2,78 juta pekerja per tahun pada tahun 2018. Tujuan penelitian ini adalah untuk melihat hubungan antara variabel independen (usia, pendidikan, pengetahuan, sikap, ketersediaan APD) dengan variabel dependen (perilaku penggunaan APD pada pekerja di ketinggian) PT TAISEI-CSC JO Proyek Apartemen Mewah Savyavasa. Sampel diambil dengan teknik *purposive sampling* dengan jumlah responden sebanyak 120 orang. Analisis dilakukan secara bivariat melalui uji chi-square. Sebanyak 77 (64,2) pekerja berperilaku buruk. Hasil penelitian menunjukkan terdapat hubungan antara pendidikan, pengetahuan, dan umur. Saran bagi pekerja untuk lebih meningkatkan kedisiplinan dalam menaati aturan yang berlaku. Bagi pihak perusahaan untuk lebih meningkatkan sosialisasi K3.

Kata Kunci: Perilaku, Penggunaan Alat Pelindung Diri, Ketinggian, Pekerja

ABSTRACT

Working at height is an activity or activity carried out by workers at a workplace on the surface of land or water where there is a height difference and has the potential to fall which could cause the worker or other people in the workplace to experience injury or death. Work accidents involving heights resulted in the deaths of 2.78 million workers per year in 2018. This research aims to look at the relationship between the independent variables (age, education, knowledge, attitudes, availability of PPE) and the dependent variable (the behavior of using PPE among workers in height). PT TAISEI-CSC JO Savyavasa Luxury Apartment Project. Samples were taken using a purposive sampling technique with a total of 120 respondents. Analysis was carried out bivariate using the chi-square test. A total of 77 (64.2) workers behaved badly. The results showed that there was a relationship between education ($p=0.000$), knowledge (0.000), and age (0.016). Suggestions for workers to further increase discipline in complying with applicable regulations. For the company to further improve K3 socialization.

Keywords: Behavior, Use of Personal Protective Equipment, Height, Workers

INTRODUCTION

Occupational safety and health (OHS) is an effort to create a safe, healthy, and pollution-free environment so that work accidents do not occur, which in turn can increase work productivity and efficiency. Workplace accidents can disrupt the overall production process, harm the environment, and ultimately impact society as a whole (1). As well as resulting in casualties and material losses for employers and workers. In this day and age, safety measures must be implemented to maintain employee interaction with their work. Because it is the key to the success of a company to be able to advance in the field of OHS, worker safety is important for the company (2).

According to the Minister of Manpower of the Republic of Indonesia Number 9 of 2016 concerning safety and occupational health at heights, working at heights is an activity or activity of workers carried out by workers at work on land or water surfaces where there are differences in height and have the potential to fall which can cause workers or other people who are in the workplace to suffer injury or death or cause damage and loss of property (3).

According to the International Labor Organization, reported that occupational accidents involving height resulted in the deaths of 2.78 million workers per year in 2018. More than 380,000 (13.7 percent) of those deaths were caused by accidents at work, while about 2.4 million (86.3%) were caused by occupational diseases. There are almost a thousand times more non-fatal workplace accidents each year than fatal ones. An estimated 374 million workers are injured in non-fatal accidents each year, and many of these accidents have a serious impact on workers' earning potential. On average, two people die every day in Europe from work-related accidents (4).

In Indonesia, the risk of workplace accidents is directly correlated with infrastructure development. Although the number of work accidents in Indonesia is still relatively high, the construction industry is the main cause with an annual incidence rate of 32%. BPJS Ketenagakerjaan recorded 153,044 cases of work accidents in 2020, compared to manufacturing, the risk of serious injury and death from construction accidents is 2.5 times higher and ranks as one of the most dangerous occupations in the world. According to the Ministry of Manpower of the Republic of Indonesia in 2014, construction workers accounted for 31.9% of all work accidents, which is a relatively high figure. Workers fell from heights 26 percent, collided 12 percent, and were exposed to 9 percent of the accidents, because businesses have not fully implemented OHS regulations and because workers are negligent in complying with existing regulations, many work accidents still occur (5).

Work-at-height accidents remain a problem in the construction industry that requires attention and prevention. According to the Agency Organizer Social Security (BPJS) Employment, there were 123,041 cases of work accidents reported in 2017 and 173,105 in 2018. According to the Central Bureau of Statistics (BPS) in August 2018, workers with less than a high school diploma comprised 58.76 percent of the total Indonesian labor force. As a result, awareness of appropriate workplace behavior is affected. Work involving heights poses the greatest risk for occupational accidents in the construction industry Only 2.1% of 15,000 large businesses in Indonesia utilize an OHS management system (6).

Based on the Regulation of the Minister of Manpower and Transmigration in 2010 Article 1, states that tools that can protect workers whose job is to cover part or all of their bodies from hazards that can endanger themselves or others in the workplace (7). According to ISC Safety School (2017) Companies must take steps to reduce the risk of workers falling from heights because working at heights is one of the leading causes of serious injury due to several factors, including unsafe work environments and inexperienced workers (2). This study aims to determine the factors associated with behavior the

use of personal protective equipment (PPE) on workers at height at PT. TAISEI-CSC JO The Savyavasa Luxury Apartment Project in 2023.

METHOD

This research is a type of descriptive quantitative research using cross-sectional. Data collection of independent and dependent variables is taken simultaneously or in one period of time together. This study aims to see the relationship between the independent variables (age, education, knowledge, attitude, availability of PPE) and the dependent variable (PPE use behavior in workers at height). In this study, data were collected from respondents using a survey method using a questionnaire. This research was conducted at PT TAISEI-CSC JO The Savyavasa Luxury Apartment Project, with a total of 120 people. Using the purposive sampling technique where the sample selection is desired by the researcher based on objectives/problems related to the objectives and research problems so that the sample can be representative to represent the characteristics of the population.

RESULTS AND DISCUSSION

Based on table 1, the frequency distribution of the behavior of using personal protective equipment on workers at an altitude of all workers totaling 120 (100%) there are 77 (64.2) workers who behave badly, and as many as 43 (35.8%) workers behave well.

Table 1. Frequency Distribution. Personal Protective Equipment Use Behavior

Behavior	Frequency (N=120)	Percentage (%)
Bad	77	64,2
Good	43	35,8

Based on Table 2, it is known that the proportion of characteristics of the largest respondent is young age (61.7%) with a primary education level (72.5%) workers with less knowledge (65%) than workers with negative attitudes (50.8%) and PPE facilities (49.2%) are available. Based on the results there is no significant relationship between the behavior of using personal protective equipment and the age of workers ($p = 0.286$). The largest proportion of those aged < 32 years with poor behavior (58.1%) and those aged > 32 years with poor behavior (69.6%).

The analysis of the relationship between the behavior of using PPE in workers at heights with workers' education showed that there is a significant relationship between behavioral use of personal protective equipment with worker education ($p = 0.000$). The largest proportion of primary education with bad behavior (83.3%) and higher education with bad behavior (25%).

Table 2. Distribution of Respondent Characteristics

Variable	Frequency (N=120)	Percentage (%)
Age		
< 32 Tahun	74	61,7
>32 Tahun	46	38,3

Variable	Frequency (N=120)	Percentage (%)
Education		
Basic	87	72,5
High	33	27,5
Knowledge		
Less	79	65
Good	41	34,2
Attitude		
Negatives	61	50,8
Positif	59	49,2
PPE Availability		
Incomplete	37	30,8
Complete	59	49,2

The analysis of the relationship between the behavior of using personal protective equipment and the age of workers ($p = 0.286$). The largest proportion of those aged < 32 years with poor behavior (58.1%) and those aged > 32 years with poor behavior (69.6%). The analysis of the relationship between behavioral use of personal protective equipment with worker education ($p = 0.000$) The largest proportion of primary education with bad behavior (83.3%) and higher education with bad behavior (25%).

The analysis of the relationship between the behavior of using personal protective equipment and knowledge ($p = 0.000$). The largest proportion was poor knowledge with poor behavior (82.3%) and good behavior with good behavior (29.3%). The analysis of the relationship between the behavior of using personal protective equipment and the attitude of workers ($p = 0.016$) The largest proportion is negative attitude with bad behavior (73.8) and positive attitude with bad behavior (50.8%). The analysis of relationship between the behavior of using personal protective equipment and the availability of workers PPE ($p = 0.332$). The largest proportion is not available with bad behavior (70.3%) and available with bad behavior (59.0%).

Table 3. Relationship between Independent Variables and Worker Behavior in The Savyavasya Luxury Residence Project in 2023

Variable	Worker Behavior		Total N	P-Value
	Good n	Bad n		
Age				
< 32 years	49 (58,1%)	25 (41,9%)	74 (100%)	0,691
> 32 years	28 (69,6%)	18 (30,4%)	46 (100%)	
Education				
Basic	67 (83,8%)	13 (16,3%)	80 (100%)	0,000
High	10 (25%)	30 (75%)	40 (100%)	
Knowledge				
Less	65 (82,3%)	14 (17,7%)	79 (100%)	0,000
Good	12 (29,3%)	29 (70,7%)	41 (100%)	
Attitude				
Negative	45 (73,8%)	16 (26,2%)	61 (100%)	0,016
Positive	30 (50,8%)	29 (49,2%)	59 (100%)	

Variable	Worker Behavior		Total N	P-Value
	Good	Bad		
	n	n		
PPE Availability				
Incomplete	26 (70,3%)	11 (29,7%)	37 (100%)	0,332
Complete	49 (59,0%)	34 (41,0%)	83 (100%)	

Based on the bivariate results, it shows that workers who have bad behavior on the use of personal protective equipment in workers at altitude with age < 32 years as many as 43 (58.1%) compared to workers with age > 32 years as many as 32 (69.6%) statistical tests produced ($p=0.286$), this shows that there is no significant relationship between age and the behavior of using personal protective equipment in workers at altitude.

This is in line with research by (Apriluana, 2016) obtained a p-value of 0,216, meaning that there is no relationship between age and the behavior of the use of personal protective equipment on workers at high altitudes (8). In contrast to research conducted by (Aisyah, 2020) obtained a value of 0.001, this shows that there is a relationship between age and behavioral use of personal protective equipment on workers at heights (9).

In this study, the age of workers obtained homogeneous results so there was no significant relationship. The research of (Mulyanti, 2018) and (Rahaju, 2011), states that age does not have a relationship to the behavior of individuals because age differences do not necessarily differ in habits of use PPE when working at heights when someone >30 years old tends to be 50% non-compliant with using PPE when working at heights (10).

In the Education variable, the results of the bivariate analysis showed a significant relationship ($p = 0.000$) between the behavior of the use of personal protective equipment in workers at high altitudes with the education level of the workers. This is in line with the research of (Firman et al., 2019) from the results of the statistical test obtained a p-value of 0.030 meaning that there is a significant relationship between the level of education and the use of PPE on workers at the height of PT. Surya Agrolika Reksa in Sei Basau $OR= 5.0$ (CI95%; 1.28-19.53) which means respondents with low education levels are 5 times more at risk of not using PPE than those with high education levels. Because a high level of education is very influential in the use of PPE (11). This research was found under what Green said in (Notoatmodjo, 2003) cited by F. R. P. (Saragih et al., 2018), education is one of the predisposing factors of a person that affects behavior (12).

Education is a fundamental factor in motivating behavior or providing a personal reference in an individual's learning experience. A person's level of education determines the breadth of knowledge and how a person behaves. Someone who has a low education will find it difficult to absorb innovations so it will be difficult to achieve the expected changes (13) (12).

Reviewing the results of the research that has been conducted shows a significant relationship ($p = 0.000$) between the behavior of the use of personal protective equipment on workers with the level

of knowledge of the worker. This is consistent with the research of (Septian, 2019) that the chi-square test indicated that there was a relationship between knowledge and the behavior of the use of personal protective equipment in workers at a significant height and the results were $p=0.000$, besides the results of research by (Pritwi, 2019) on construction workers value (14).

There is a conformity of the results of this research with the Lawrance Green theory which explains that knowledge is one of the factors that facilitate or predispose factors of one's behavior and vice versa, one's behavior is caused by one's knowledge which becomes an internal factor of an individual.

Based on the results of the research that has been conducted it shows a significant relationship ($p = 0.016$) between the behavior of the use of personal protective equipment on workers at altitude with the attitude of workers. This is in line with the research of Bara et al., (2021) on firefighting workers in the fire department of city X that there is a relationship between attitudes and behavior of using personal protective equipment on workers at heights with a p-value of 0.035, which explains that a poor attitude affects workers in using personal protective equipment it can increase the risk of occupational accidents. In addition, research from (Sangaji, 2018) showed the amount of behavior that did not use personal protective equipment on workers at heights on respondents with a poor attitude of 66.7% and from the results of the Spearman test obtained a p-value of 0.044, which means there is a relationship between attitudes and behavior of using personal protective equipment on workers at heights altitude (13).

This research was found to be consistent with that conveyed by (Notoatmojo, 2014) attitude is how the opinion or assessment of a person will something. Meanwhile, according to Campbell (1950) in Notoatmojo (2014) attitude is a syndrome or collection of symptoms in responding to a stimulus or object so that it involves thoughts, feelings, attention, and other psychological symptoms (15).

In the statistical test results, it was found that workers who had bad behavior regarding the use of protective equipment on workers at heights who stated that there was no availability of PPE 26 (70.3%) compared to workers who stated the availability of PPE 49 (59%) the statistical test resulted in $p=0.332$, this indicates that there is no significant relationship between the availability of PPE and the behavior of the use of protective equipment on workers at heights. This research is by the research conducted by Askhary (2017) obtained $p=0.12$ ($p>0.05$), meaning that there is no relationship between the availability of PPE with the behavior of the use of personal protective equipment on workers at heights In contrast to research (Listyandini, 2019) there is a relationship between availability PPE with the behavior of the use of personal protective equipment in workers at heights, obtained a p-value ($0.000 < \alpha (0.05)$) (16).

This research is not in line with what Green says (1980) behavior is manifested in three factors, for example, the enabling factor which is the availability of Facilities and facilities in health The supply

of PPE is a factor that supports the realization of behavior or action, this situation is in line with NotoatmOjo who suggests that attitudes automatically have not been applied into action without being driven by the availability of facilities (15).

CONCLUSION AND SUGGESTIONS

Based on the results of the research that has been carried out, it can be concluded that the behavior of the use of personal protective equipment on workers at high altitudes shows that the behavior of workers is poor at 62.5%. The high bad behavior of workers based on the results of the study was caused by the low behavior of the use of masks when working (50%), then the use of large hooks when working (46.7%), and the use of hand protective equipment (37.5%). when. working. The results of statistical tests show that there is a relationship between education, knowledge, and attitudes toward the behavior of using personal protective equipment on workers at higher altitudes ($p < 0,005$).

With this research, it is hoped that workers will further increase discipline in complying with applicable rules, such as always using PPE in full using a mask at work, attaching large hooks when working at height, and using gloves when working, remind coworkers if they do not use personal protective equipment completely and always pay attention to the work environment so that there are no unsafe conditions. For the company to further improve K3 socialization, both always use personal protective equipment such as masks, attaching large hooks and gloves when working to all workers and conducting training on safe working at height to improve workers' skills, knowledge and can improve workers' attitudes about the obligation to use complete PPE while working.

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