

Awareness of Occupational Safety and Health Based on Socio-Demography of Workers at UiTM Cawangan Pulau Pinang

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ABSTRACT : *The level of awareness among workers on Occupational Safety and Health (OSH) in the workplace is very important in ensuring safety at a safe level at all times. Awareness activities can be conducted to reinforce positive attitudes, working behaviour, and safety culture among workers. This study aims to examine the level of awareness among workers at Universiti Teknologi MARA Cawangan Pulau Pinang (UiTM CPP), Malaysia in terms of their socio-demographic and safety awareness factors at their workplace. The respondents of the study comprise a total of 193 staff from different faculties and departments at UiTM CPP. A survey method was used as the instrument to obtain data. The data obtained were analyzed descriptively using frequency, percentage, and mean to identify the level of awareness of respondents. The Statistical Package for the Social Sciences (SPSS) version 20 was used for this purpose. The study found that the socio-demographic factors i.e. gender, age, level of education, and length of service of UiTM CPP staff have influenced on OSH awareness at a different level and they were at a very high level. The males were at a higher level than the female respondents with an average mean score of 4.47 and 4.31 respectively. Both the employees and employer must always cooperate and consult each other on OSH matters. On top of that, the employer must provide appropriate information and awareness on OSH programme. The employer should provide good and efficient safety and health management team to ensure that the OSH awareness of the workers is always at a very high level.*

Keywords - *Awareness, Demography, Influence, Occupational Safety and Health, UiTM.*

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1.0 INTRODUCTION

Proper safety protection in the workplace will result to efficient and safe environment where the workers feel safe executing their jobs, are more likely to take personal accountability, and be engaged in work. A safe workplace is a continuous process that involves safety awareness, safety culture as well as safety procedures and practices. Dursun (2013) stated that the frame of mind of the workers to determine the perceptions and judgements about personal abilities and responsibilities to avoid risks in the workplace is called safety awareness. According to the Advanced Consulting and Training Ltd. (2021) safety awareness is a constant realization that all workers should have at all times where they are constantly aware of how they work, and are able to recognize the hazards they face. These are absolutely important in reducing safety-related risks.

Awareness is an important element in any effort in the prevention of occupational injuries and illnesses. Awareness activities can be used to reinforce positive attitudes, working behaviour, and safety culture among workers. Awareness of safety practices is an important matter for employers and employees to ensure safety in the workplace as well as reducing the risk of accidents at work (Kadir & Norfadillah, 2020). When employees are aware of safety and health risks in the workplace, they will be able to address safety and health issues and follow safe work practices (Safe Work Australia, 2020).

A fundamental right of workers to work in any organization is to have a healthy and safe environment. All organizations or employers are responsible to ensure their employees work in a safe workplace. Nevertheless, according to a recent report by the International Labour Organization (ILO), each year 2.78 million workers die from occupational accidents and work-related diseases and where 2.4 million mostly are disease-related, while 374 million workers suffer from non-fatal occupational accidents (ILO, 2019). Very low awareness of legal provisions concerning Occupational Safety and Health (OSH) among the workers, the union leaders, and management were attributed to the major cause of such accidents. A similar finding was also identified by Mohd et al. (2014), where high accident rate is greatly influenced by the low level of safety awareness among workers in the workplace and he concluded that safety awareness is an important element that needs to be nurtured in every employee to prevent accidents at work. Occupational accidents still occur even though the working environment has improved considerably during recent decades.

Safety and health issues do not only happen in the commercial industries but also at institutions of higher learning especially those directly and indirectly involved in the handling of machinery and chemicals at risk, such as Universiti Teknologi MARA Cawangan Pulau Pinang (UiTM CPP), Malaysia. The workers of UiTM CPP can be exposed to the risk of accidents at work. Most laboratories, workshops, and plants available at UiTM CPP have the potential to cause injury or accident to its users if it is not handled properly or if users do not follow the rules as prescribed. Therefore, this study was conducted to examine the demographic level of awareness of OSH at the workplace where the safety awareness factors were used in the measurement. To date there is yet any literature review, data nor research available on OSH conducted at UiTM CPP.

2.0 LITERATURE REVIEW

The implementation of Occupational Safety and Health (OSH) is very important and must be rightly incorporated into more workplaces around the world. Generally, OSH can be categorized into two different entities; occupational safety is the potential safety hazards that can possibly cause injury and the risk factor in the workplace and occupational health which is the physical wellbeing and potential health concern including mental health (Safety and Access, 2020). Effective OSH programmes are beneficial for both employers and employees. The purpose of enforcement of the laws, regulations, standards, and programmes related to OSH was to ensure that the workers, customers, co-workers, family members, and other stakeholders have a better and safer workplace. OSH requires cooperation among multiple stakeholders which is the government, employers, and employees who have roles to play in enhancing safety and health outcomes. It is the role of the company to prevent injuries and hazards in all work environments. The risk assessment regarding safety and health at work must be performed by the employers so that the desired state of safe working conditions can be achieved. It has become an essential requirement to adopt the importance of OSH and to create occupational safety awareness among employers and employees. The formation of this awareness is possible only by performing effective training and for the companies to assess their profile (Dizdar, 2008).

The level of OSH awareness in an organization can be measured via an assessment of employee knowledge, understanding and involvement of aspects of occupational safety and health management such as legal compliance, safety and health policy, safety and health committee, safety and security procedures, training, investigation of complaints and accidents, and emergency action preparation (Kadir et al., 2016; Nik et al., 2019). The organization management must inform the workers about current and changing awareness of health and safety hazards, safe work practices, and risk perception that can help to understand where to focus prevention strategies of OSH. The safety measures of workers' awareness of OSH and the working environment are important countermeasures against occupational accidents.

Employee awareness of the importance of maintaining safety and health can help to reduce the likelihood of accidents at the workplace. Safety awareness must be one of the basic concerns that employers emphasize and the employees themselves must prioritise safety aspects in the workplace. The employer must also take appropriate measures to ensure their employees are sensitive to safety issues by increasing employee awareness. The steps which can be taken by the employer in raising the awareness of the employees to always maintain safety by providing guidelines, education, and training to the workers. This is in line with Lai et al. (2011) study which stated that safety training is one of the most effective mediums for reducing accident cases by helping employees identify hazards which are likely to occur while at work.

The guideline on OSH in the service sector published by the Department of Occupational Safety and Hazard (DOSH) (2004) stated that many accidents occur to workers particularly involving the younger ones when using machines or substances, or equipment, or work in hazardous circumstances without proper training. The workers should not use dangerous equipment or substances unless they have been properly trained and are competent. The managers and supervisors must also be competent and attend suitable trainings. Generally, injury rates are significantly higher among young workers than among older and more experienced ones due to their lack of knowledge, experiences, carelessness, and unawareness of OSH at the workplace. There are many risks related to injury and illness factors at the workplace and the socio-demographic of the workers is one of the factors in an attempt to determine their association with occupational injuries and OSH awareness.

Several studies have been conducted based on employee demographic factors. In terms of age factor, the study by Anuar et al. (2009) found that the level of knowledge and awareness of occupational risks among respondents of medical laboratory workers in Klang, Malaysia showed significant differences by age group. Older workers are shown to be more conscious of safety and to have more professional knowledge and experience compared to young workers. In addition, studies have shown that young workers are at a higher risk of accidents compared to the more senior ones (Choudhry & Fang, 2008). In 2015, Nor and Hamirul concluded in their study that the demographic factors such as age, work experience, level of education, and training attendance among forklift drives in the manufacturing sector are influenced on the level of OSH awareness of employees.

Men in all age groups had more access to OSH services than women even though women had higher educational degrees than men and worked less often in manual occupations such as in industry, construction, and manufacturing sectors (Dragano et al., 2018). In 2018, Sujana et al. investigated on the awareness of occupational hazards and associated factors among automobile repair artisans in Kathmandu, Nepal and found that those who obtained primary, secondary or higher level of education were more aware of occupational hazards compared to the illiterate artisans. However, Uzuntarla et al. (2020) in their study found that the safety awareness level of healthcare professionals in a training and research hospital in Ankara Turkey was high with an average mean score of 3.85 and the sociodemographic characteristics of the respondents were not affected by the awareness level. In another study, Ibrahim and Abdullah (2014) investigated on the pre-service teachers in technical and vocational education in Malaysia on their level of safety awareness and reported that the years of study do not affect their awareness level; their levels were moderate with an average mean score of 3.97.

3.0 METHOD

The study conducted involved the staff of UiTM Cawangan Pulau Pinang (UiTM CPP), Malaysia at both Permatang Pauh and Bertam campuses. This is a quantitative study using statistical analysis on the level of awareness of staff working with the risky types of machines or equipment in teaching and learning either in the workshop, kitchen, laboratory, or fieldwork on aspects of safety and health at work based on social demographic characteristics. The respondents were lecturers, assistance lecturers, assistance science officers, assistance engineers, chefs, and assistance chefs. The level of staff awareness on safety and health aspects in the workplace can be assessed based on their perceptions of occupational safety and health policies, safety and health committees, standard operating procedure, commitment and attitude, training, equipment, and environment (Durrisah et al., 2004). The awareness perceptions and the type of questions in the questionnaire form were used in the study are shown in Table 1. Altogether the total number of questions is 43.

Questionnaires were used as data collection instruments and distributed to 193 staff at UiTM CPP. The distribution of the online questionnaire to the targeted staff was sent via UiTM CPP e-mail. Most questions in the questionnaires were adapted from a research study by Durrisah et al. (2004), and they were modified to meet the research objectives. Questionnaires were prepared in a Likert scale format with a measurement scale of one to five for respondents to indicate the degree of agreement with each question posed which is 1 – strongly disagree; 2 – disagree; 3 – unsure; 4 – agree; and 5 – strongly agree.

Table 1 Awareness Perceptions and Type of Questions

No	Awareness perception	Questions
1	Occupational Safety and Health Policy (OSH)	1. Every organization needs to have a safety and health policy. 2. Safety policy needs to be posted in an easy-to-see area. 3. Safety policy needs to be explained to all employees. 4. Safety policy needs to be clear and easy to understand.
2	Standard operating procedure (SOP)	1. I know there are SOPs at my place of duty. 2. I adhere to all SOPs while doing work. 3. Failure to comply with the SOPs may result in injury to me, and other users. 4. SOPs should be clear and easy to understand. 5. SOPs documents need to be placed in a convenient place.
3	Equipment	1. There is personal protective equipment at my place of duty. 2. I will use personal protective equipment while on duty when needed. 3. I found adequate fire extinguishers. 4. Fire extinguishers are conveniently located. 5. Equipment /machines need to be clearly labeled.

6. Equipment/machines layout is appropriate and safe.

4	Training	<p>1. I have attended activities related to Occupational Safety and Health.</p> <p>2. I have to follow activity and safety training continuously.</p> <p>3. Activity and safety training needs to be exposed to all employees.</p> <p>4. I am aware that first aid training is important.</p>
5	Safety and Health Committee (SHC)	<p>1. I am aware of the SHC at the university level.</p> <p>2. I like to engage in activities organized by the SHC.</p> <p>3. SHC regularly conducts occupational safety activities such as talks, fire drills, and first aid.</p> <p>4. Every occupational accident will be investigated by the SHC.</p> <p>5. Safety and health talk organized by the SHC enlighten me on the importance of maintaining safety and health wherever I am.</p> <p>6. Occupational Safety and Health week are held every year by SHC</p> <p>7. I am aware of the SHC in my faculty/department at my place of duty.</p> <p>8. The campaign for 'safe work' and 'healthy environment' in the workplace is conducted continuously by SHC.</p>
6	Commitment and attitude	<p>1. Negligence in safeguarding safety will endanger me, colleagues and students.</p> <p>2. I always obey safety regulations at my place of duty.</p> <p>3. I will check the equipment/machine first before using it.</p> <p>4. Personal protective equipment worn does not interfere with my work</p> <p>5. Any equipment/machine damage will be reported immediately.</p> <p>6. Occupational safety and health must be prioritized.</p> <p>7. I will tell the importance of Occupational Safety and Health to colleagues and students</p> <p>8. I always make sure the equipment /machine clean and tidy after use.</p>
7	Environment	<p>1. My working environment is safe.</p> <p>2. The air circulation system is good and sufficient.</p> <p>3. The noise level is safe.</p> <p>4. Work pieces/tools are organized neatly and securely and labeled in respective categories.</p> <p>5. The exit door provided is sufficient.</p>

- 6. I always make sure the aisle is not blocked by any obstacles.
- 7. Solid/liquid waste materials are disposed of in a safe place.
- 8. I always keep the floors clean of oil, dust, water, and unsafe materials.

Data obtained from the questionnaires were analyzed using Statistical Package for the Social Sciences (SPSS) software version 20. Descriptive data analysis methods namely frequency, percentage, and mean were used to explain the results of the study. Reliability level test on the set of research questionnaires was conducted involving a total of 35 selected respondents and the results showed that the level of reliability of the questionnaire set of this study was at a high level with a Cronbach alpha value of 0.85. If the value of the alpha coefficient is less than 0.6, i.e. poor reliability, therefore it is necessary to improve the items in the research instrument to increase the value of the coefficient (Stephanie, 2020).

The interpretation of the level of awareness possessed by the respondents is used in this study based on the 5 level scale of the mean score which is adopted from Moidunny (2009) is shown in Table 2. These scales are commonly used for the interpretation of the five-point Likert scale in the descriptive analysis.

Table 2 Interpretation of Mean Score Levels

Scale	Mean range	Level	Score range
5	Strongly agree	Very high	4.21 – 5.0
4	Agree	High	3.21 – 4.20
3	Unsure	Moderate	2.61 – 3.20
2	Disagree	Low	1.81 – 2.60
1	Strongly disagree	Very low	1.0 – 1.80

4.0 RESULTS AND DISCUSSION

4.1 Socio-Demographic

The analysis of the data is based on the 193 respondents returning the questionnaire to the study. The data was classified as a personal background of the respondents based on gender, age, category of staff, length of service, and education level. Table 3 shows the detailed analysis of the personal background of the respondents. In this study, most of the respondents were male (54.4%) and the remaining were female (45.6%). Based on the data acquired, the largest age group of the respondents is 31 to 40 years old (58.1%), the second-largest is 41 to 50 years old (32.1%) and none from age below 20 years old. Majority of the respondents (81.9%) is academic staff, while the non-academic staff is 18.1%. The largest education group level is Master’s degree holder (53.4%) followed by Ph.D holders (23.8%) while only one respondent (0.5%) is a Sijil Tinggi Persekolahan Malaysia (STPM) holder. Most of the respondents has served at Universiti Teknologi MARA between 11 to 15 years (41.1%), 8.9% served less than 5 years and 2.6% served more than 21 years.

Table 3 Socio-Demographic of the Respondents

Characteristics	Category	Frequency	Percentage (%)
Gender	Male	105	54.4
	Female	88	45.6
Age (years)	< 20	0	0
	20 – 30 served	6	3.1
	31 – 40	112	58.1
	41 – 50	62	32.1
	> 51	13	6.7
Staff category	Academic	158	81.9
	Non-academic	35	18.1
Education level	Ph.D	46	23.8
	Master	103	53.4
	Degree	7	3.6
	Diploma	27	14.0
	S.T.P.M	1	0.5
	Certificate	7	3.6
	S.P.M	2	1.0
Length of service (years) ^a	< 5	17	8.9
	6 – 10	56	29.2
	11 – 15	79	41.1
	16 – 20	35	18.2
	> 21	5	2.6

^aData was missing for 1 respondent.

Note: S.P.M = Sijil Pelajaran Malaysia; S.T.P.M = Sijil Tinggi Persekolahan Malaysia

4.2 OSH Awareness Level

Table 4 shows the level of awareness of respondents on OSH in the workplace by gender. Data analysis showed that there was a small difference in the mean average score between male and female respondents of 0.16. The highest and lowest level of OSH awareness factors for male respondents was safety policy (4.90) and environment (4.29) respectively. Meanwhile, the female respondents had the highest commitment and attitude (4.62) and lowest in the safety and health committee (3.88). The data showed that male respondents had a higher level of OSH awareness with an average mean score of 4.47 compared to female respondents with a mean score of 4.31 in which both were very high levels of OSH awareness. A similar result was obtained by Firdaus et al. (2013) in their study of polytechnic staff in Kedah where the awareness level of OSH for males is higher than females with an average mean score of 4.27 and 4.21 respectively. The current study by Kadir et al. (2021) also found that the male respondents had a higher level of awareness with an overall mean score of 4.36 compared to female respondents with a mean score of 4.26.

Table 4 Mean Score for Each OSH Factor by Gender

Gender	Safety Policy	Standard Procedure	Equipment	Training	Safety committee	Commitment	Environment	Average
Male	4.90	4.60	4.39	4.53	3.92	4.63	4.29	4.47
Female	4.28	4.58	4.28	4.41	3.88	4.62	4.14	4.31

The level of awareness of respondents on OSH at the workplace by age is shown in Table 5 and it is found that the level of awareness for all age groups is very high. There are no respondents for the age group less than 20 years old. The respondents aged 50 years and above had the highest level of awareness when they recorded an average mean score of 4.49. Meanwhile, respondents aged 20-30 years had the lowest level of awareness when recording an average mean score of 4.27. Data analysis showed that there was a small difference in the mean average score between age 31 to 51 years and above of 0.03 and this group of age is the highest level compared to the age group less than 30 years old. The findings of the study also showed that the level of awareness increased with the age of the respondents.

The findings of this study are consistent with the results of the study by Kadir et al. (2021) through a study of the level of Awareness of OSH Civil Servants on the safety and health aspect at the workplace who found that the age group of more than 50 years is higher level than the age group of 18 – 29 years with an average mean score of 4.49 and 4.19 respectively. The young workers aged less than 30 years in Italy had less access and lower awareness of OSH issues than workers aged more than 31 years. The former were less aware of their personal responsibility for health and safety, emergency procedures, and basic regulatory framework (Dragano et al., 2018).

Table 5 Mean Score for Each OSH Factor by Age

Age	Safety Policy	Standard Procedure	Equipment	Training	Safety committee	Commitment	Environment	Average
< 20	-	-	-	-	-	-	-	-
20-30	4.67	4.40	4.28	4.17	4.17	4.33	3.89	4.27
31-40	4.91	4.64	4.41	4.45	3.93	4.65	4.25	4.46
41-50	4.92	4.54	4.22	4.55	3.78	4.62	4.17	4.40
>50	4.92	4.58	4.29	4.50	4.09	4.63	4.39	4.49

The level of awareness of respondents on OSH at the workplace by education level is shown in Table 6 and found that the level of awareness for all education level groups is very high. Data analysis showed that there was a small difference in the mean average score between the highest and lowest education level which is 0.20. There is only one respondent who is an STPM holder and no average mean score so that the mean score comparison is considered not valid. The respondents with a certificate level of education were found to have the highest level of awareness of OSH in the workplace with an average mean score of 4.60 while the lowest is those with Master’s degree which is 4.40. It is also found that degree holder respondents had lower awareness of OSH compared to those with diploma and below with an average mean score of 4.42 and 4.52 respectively. The difference of the average mean score is very small which is at 0.1.

The findings of this study on the social demographic characteristics of this level of education are different from the several findings of the other study. The results of the study conducted by Kadir et al. (2021) were reported that respondents with Doctor of Philosophy (Ph.D.) had higher scores than those with Sijil Tinggi Persekolahan Malaysia (STPM) with an average mean score of 4.53 and 3.66 respectively. Demirer and Öz (2019) investigated on the employees who had different demographic characteristics and work in Burdur province Turkey. They concluded that as the employees’ level of education increases, their occupational safety awareness increases too. They also suggested that OSH education should be given face-to-face. In 2012, Zolkufli and Faiz also found that those who have a Master’s level education have a high level of awareness compared to workers with a diploma and below level of education. The workers who have higher level of education and job position have a high score of knowledge of OSH compared to those who have lower education and position level (Anuar et al., 2009).

Table 6 Mean Score for Each OSH Factor by the Education Level

Education level	Safety Policy	Standard Procedure	Equipment	Training	Safety committee	Commitment	Environment	Average
Ph.D	4.96	4.63	4.31	4.47	3.82	4.61	4.22	4.43
Master	4.92	4.56	4.24	4.46	3.84	4.62	4.16	4.40
Degree	4.70	4.71	4.36	4.46	3.82	4.66	4.25	4.42
Diploma	4.86	4.66	4.66	4.55	4.12	4.66	4.43	4.56
STPM*	4.97	4.20	4.67	4.01	3.88	4.25	4.02	4.29
Certificate	4.75	4.54	4.74	4.57	4.37	4.80	4.45	4.60
SPM	4.50	4.51	4.33	4.50	4.37	4.44	4.20	4.41

*Only one respondent – cannot use for the comparison of the average mean score.

Table 7 shows the level of awareness of respondents on OSH at the workplace according to the length of service and found that the level of awareness for all length of service groups is very high. Data analysis showed that there was a small difference in the mean average score between the highest and lowest length of service level which is 0.20. The respondents who served more than 21 years had the highest level of awareness as they recorded an average mean score of 4.56 while the respondents who served 6-10 years had the lowest level of awareness as recorded an average mean score of 4.36. The average mean score of the length of service less than 5 years is higher than those who served 6-10 years perhaps due to the small number of respondents (8.9%). However, the trend of the average mean score for the groups of the length of service shows that as the length of service increases, their OSH awareness increases too.

The results of the study on the demographic social characteristics of the length of service are consistent with the results of the study by several research. The current study by Kadir et al. (2021) found that the workers who served 15 years and above had the highest level of OSH with an average mean score of 4.37 while those who served less than 5 years obtained the lowest level with an average mean score of 4.30. Sujan et al. (2018) reported that the workers with more than 11 years of work experience were six times and those with 6-10 years of experience were two times more aware of occupational hazards than those under 5 years of experience. Moreover, workers who received pre-service training on work were three times more aware than those who did not receive it before. The study by Firdaus et al. (2013) found that the awareness level of OSH for the length of service more than 11 years is higher than those with less than 10 years with the average mean scores of 4.37 and 4.22 respectively, which is a high level. The workers who have worked for a long time have more work experience and have a higher level of awareness of safety and health in the workplace than other workers (Zolkufli & Faiz, 2012).

Table 7 Mean Score for Each OSH Factor by the Length of Service

Length of service	Safety Policy	Standard Procedure	Equipment	Training	Safety committee	Commitment	Environment	Average
< 5	4.84	4.55	4.34	4.48	4.20	4.59	4.15	4.45
6-10	4.91	4.54	4.33	4.37	3.77	4.59	4.19	4.36
11-15	4.91	4.66	4.34	4.46	3.92	4.67	4.26	4.46
16-20	4.90	4.54	4.32	4.66	3.91	4.67	4.22	4.47
>21	5.00	4.72	4.60	4.55	3.97	4.67	4.40	4.56

Malaysian Occupational Safety and Health Act 1994 (2001) stated that employers have a responsibility to ensure, so far as is reasonably practicable, welfare at work, safety and health of their employees, and the safety and health of other people affected by their undertaking. This duty includes preparing safe systems of work, safe machinery, safe and healthy workplace, and together with adequate information, training, instruction, and supervision. The employees also have to take care of their safety and health adequately. The safety of workers in the workplace should always take priority. The employers must ensure a safe work environment so that the workers can stay safe when performing their duties. Ensuring worker safety means creating a safe, efficient, positive workplace where employees can focus on productivity.

5.0 CONCLUSION

This study shows that the socio-demographic factors of gender, age, level of education, and length of service of UiTM CPP staff have influenced OSH awareness at a different level. This study found that the respondents were at a very high level of OSH awareness. The male workers were at a higher level of awareness than the female workers. The senior workers who have more work experience were at a higher level of awareness than the young workers. The factor of the different education levels of the workers can be considered similar due to very small mean score differences where they are at the same level of OSH awareness which is a very high level. The academicians and supporting workers in the universities are considered professionals who can maintain their safety and health by themselves. They must also be given appropriate information about OSH and join awareness programmes to ensure the goal of OSH awareness will be achieved. Employers should undertake the responsibility of informing and training the employees and their representatives on all matters related to OSH. Improving OSH requires consultation, commitment, and cooperation from all stakeholders. Good and efficient safety and health management teams and safety practices are the foundations of the success of any business and organization in OSH. Thus the employers should play an important role to ensure the OSH awareness level of the workers will always be at a very high level.

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