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Analysis of Occupational Health and Safety (K3) on Work Productivity of UNY Swimming Pool Employees

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ABSTRACT: This study aims to identify the influence of occupational health and safety on the work productivity of UNY Swimming Pool employees. This research was conducted on January 4-5 2023 at the Kuningan Swimming Pool and the Wates (Vocational) Campus Swimming Pool, Yogyakarta State University. This research is associative research with a survey method with data collection techniques using observation and questionnaires. The subjects used in this study were 26 respondents who were UNY Swimming Pool employees. The data analysis technique used in this research is descriptive analysis. Based on the results of the study, Occ Safety simultaneously have an influence of 28.5% on the Work Productivity upational Health and Occupational of Yogyakarta State University Swimming Pool Employees and there are 71.5% of other factors or variables outside this research model. The results of research on risk control, on slippery floors, risk control can be done by routinely drying the wet floor, and brushing the moss that sticks to the floor.

Then the hierarchy of control is in the form of administrative. When sprinkling chlorine powder (chemicals), risk control can be carried out using tools such as masks, goggles, gloves. Then the hierarchy of control is in the form of personal protective equipment (PPE). For broken ceramic pool floors, risk control can be carried out by routinely checking and making repairs immediately. Then the hierarchy of control is administrative. For visitors, risk control can be carried out by prevention with appeals, and have lifeguards who are trained in dealing with visitors. Then the hierarchy of control is administrative. In bad weather, risk control can be done by closing and securing visitors during bad weather. Then the hierarchy of control is administrative.

KEYWORDS: Occupational Health; Occupational Safety; Work Productivity; YSU Swimming Pool;

1. INTRODUCTION

Occupational Health and Safety (OHS) is essentially a program that aims to protect the stability of business operations. Apart from that, because of this, occupational health and safety costs to pay for sick employees will decrease because occupational health and safety is developed. By maintaining the condition of employees, the company's productivity will immediately increase. The basic plan on occupational safety and health concerns two things, namely: unsafe behavior and unsafe environmental conditions. based on data from the 2010 Labor Course Bureau, the causes of accidents that have occurred to date are caused by unsafe behavior such as; (1) Reckless and careless, (2) Not complying with regulations, (3) Not following standard work procedures, (4) Not wearing personal protective equipment, (5) Weak body condition.

According to Widodo (2015: 89) occupational health is a health condition that aims for the working community to obtain the highest degree of health, both physically, spiritually and socially with efforts to prevent and treat diseases or health problems caused by workers and the work environment and diseases. general. According to Mangkunegara (2016: 156) work safety refers to conditions that are safe or safe from suffering, damage or loss in the workplace. Based on the opinions of the experts above, it can be concluded that work safety is a treatment given by the company to employees in the form of protection from possible hazards arising from the work environment so that employees feel safe and comfortable at work which can affect the quality of employee work.

According to Sondang P Siagian (2013: 15) work productivity is the ability to get the maximum benefit from the available facilities and infrastructure by producing optimal output, if possible the maximum. In this regard, the concept of productivity basically includes mental attitudes and behaviors that are oriented towards continuous improvement, and holds the view that today's performance must be better than yesterday, and tomorrow's performance must be better than today.

The UNY Swimming Pool, which is engaged in providing lecture services for UNY students and swimming services for the general public, has realized the importance of fostering occupational health and safety (OHS) to achieve management goals, namely "zero accidents". Guidance is carried out to ensure work can be safe for its users. According to the records of accidents that occurred at the UNY Swimming Pool from 2010 to June 2022 there were several incidents of accidents with different causes, leg/stomach cramps due to lack of heating, negligence/slowness of rescue/lifeguard in providing first aid to victims, not to mention accidents of moderate, such as broken bones due to collisions with hard objects, for example floors, pool walls, etc., also minor accident categories, such as fainting, cramps, dizziness, and others.

The UNY Swimming Pool has not implemented a OHS (Occupational Health and Safety) management system, we look at the potential for identifying hazards in several parts of the UNY Swimming Pool, starting from the arrival of visitors / the UNY Swimming Pool Parking Area, at the place where tickets are purchased to enter the pool , in visitor changing/rinsing areas, in the UNY swimming pool environment, for example on a slippery floor due to the passing of people/visitors, in the condition of the grill/drain cover at the edge of the pool, in the pool, potential danger due to some ceramic/floor pool walls which are cracked, broken and sharp ceramic shards have the potential to injure visitors, signs that are not optimal (signed) for example slippery floors either due to passing visitors or when employees are mopping the floor), also on pool stairs which are also slippery potentially endangering visitors, car condition The UNY Swimming Pool ambulance does not have a special driver, the condition of the ambulance is that it is almost never serviced/maintained regular car. The problem in the UNY Swimming Pool is the problem of occupational safety and health, because the UNY Swimming Pool has not implemented an OHS management system but the number of work accidents is still small, cases of moderate-level accidents, and small-level accidents experienced by visitors often occur. Accidents that occur not only harm visitors, but also have an impact on the reputation and income of the UNY Swimming Pool. Based on this work accident that occurred, it is necessary to do an analysis of the effect of implementing OHS on the performance of employees at the UNY Swimming Pool. of the title, extracting from it keywords useful in cross-referencing and computer searching. An improperly titled paper may never reach the audience for which it was intended, so be specific.

2. RESEARCH METHOD TYPES OF RESEARCH

The research method used by the author is a survey method. According to Sugiyono (2013: 11) the meaning of the survey research method is: "Research conducted using a questionnaire as a research tool carried out on large and small populations, but the data studied is data from samples taken from that population, so that relative events are found, distribution, and the relationship between variables, sociological and psychological."

Time and Place of Research

When the research was carried out on January 4-5 2023 at the UNY Kuningan Swimming Pool and the Wates Campus.

Research subject

The research subject according to Suharsimi Arikunto (2016: 26) defines the research subject as an object, thing or person where the data for the research variable is attached, and which is at issue. In a study, the research subject has a very strategic role because the research subject is the data about the variables that the research observes. The subjects in this study were UNY Swimming Pool employees.

Data collection technique

In this study, the data collection technique used by the author is a questionnaire (questionnaire). According to Sugiyono (2013: 137) a questionnaire (questionnaire) is a data collection technique that is carried out by giving a set of questions or written statements to respondents to answer. The types of questions in the questionnaire that the author made were closed and open types. Closed questions help respondents answer quickly because the answers are already contained in the questionnaire, whereas open questions aim to give respondents freedom to answer. This study also uses data collection techniques in the form of observation to be able to identify, assess, and control hazards in research subjects. In preparing the research questionnaire, the researcher adopted several previous studies and modified it according to the needs of the researcher. Researchers also seek from various sources and references that are linear but only used as a reference. The research instrument lattice data is presented in the following table:

Table 1. Instrument Grid

Symbol	Variable	Indicator
	Occupational Health (X1)	
X1.1	Occupational Health	**Physical Work Environment** Workplace noise conditions Work Environment Cleanliness Swimming pool sanitation
X1.2		**Employee Health Facility** Clean water supply Restroom facilities Medical services
X1.3		**Employee Health Care** Medical examination Provision of nutrition / nutritious food Physical training
	Occupational safety (X2)	
X2.1	Occupational safety	**Support and Communication** Dissemination of Occupational Safety Changes in work procedures are communicated effectively to employees
X2.2		**Labor Safety Equipment** Completeness of work equipment Availability of fire extinguishers
X2.3		**Workload** Sufficient number of workers to complete the required work Employee work schedule is appropriate
X2.4		**Accident Prevention** Occupational Health and Safety Rules/Procedures Posters or banners regarding Occupational Health and Safety regulations
X2.5		**Work Safety Training** Participation in Occupational Safety and Health training Provision of social security support to employees
Y1	Employee Productivity (Y)	Interest in work
Y2		Incentives and job appreciation
Y3		Work environment
Y4		Safety at work
Y5		Discipline

Meanwhile, the HIRARC variables are as follows:

Table 2. Consequence Criteria

Level	Criteria	Explanation
1	Insignification	No injuries, little financial loss
2	Minor	First aid, on-site treatment, and moderate financial losses
3	Moderate	Requires medical treatment, on-site treatment with outside assistance, large financial loss

4	Major	Serious injury, loss of production capability, extraordinary handling
Level	**Criteria**	**Explanation**
5	Catastrophic	Death, poisoning to outside area with disruptive effects, huge financial loss

Table 3. Likehood Criteria

Level	Criteria	Explanation
1	Almost Certain	Occurs in almost all circumstances
2	Likely	Very possible
3	Possible	Can happen at any time
4	Unlikely	Chances are rare
5	Rare	Can only occur in certain circumstances

Table 4 Risk Matrix

Likehood	Consequence				
	1	2	3	4	5
5	H	H	E	E	E
4	M	H	H	E	E
3	L	M	H	E	E
2	L	L	M	H	E
1	L	L	M	H	H

Table 5. Risk Ratings and Levels

INSTRUMENT VALIDITY AND REALIBILITY

1. Instrument Validity Test

In preparing the questionnaire, validation from 2 experts was also used. Questionnaire statement items are said to be valid if r count > r table. From the test results, there were 16 invalid statements out of 30 statements.

2. Instrument Reliability Test

The reliability test in a study was carried out by looking at the Chronbach alpha value of each instrument indicator. An indicator is considered reliable if the Cronbach's Alpha value is above 0.6. The results of the reliability test can be seen in the following table:

The research method used by the author is a survey method. According to Sugiyono (2013: 11) the meaning of the survey research method is: "Research conducted using a questionnaire as a research tool carried out on large and small populations, but the data studied is data from samples taken from that population, so that relative events are found, distribution, and the relationship between variables, sociological and psychological."

Reliability Statistics

Table 6. Reliability Test

Cronbach's Alpha	N of Items
.809	30

DATA ANALYSIS TECHNIQUE

1. Descriptive Statistical Analysis

The data obtained will be analyzed in a quantitative descriptive manner. Quantitative analysis is used to determine the level of employee productivity, occupational health and safety. The data processing is used with the help of excel software and SPSS software. Quantitative data analysis used is descriptive analysis technique, while the calculation method uses percentages. The data are grouped into five categories, namely very good, good, good enough, not good, not good. This categorization uses the mean and standard deviation to determine the score criteria using the Norm Reference Assessment (NRA) according to Hamzah (2022: 36) in a modified scale as follows:

Table 7. Score Criteria Scale

No	Range	Category
1	X > M + 1,5 SD	Very good
2	M + 0,5 SD < X ≤ + 1,5 SD	Good
3	M – 0,5 SD < X ≤ M + 0,5 SD	Pretty good
4	M – 1,5 SD < X ≤ M – 0,5 SD	Not good
5	X ≤ M – 1,5 SD	Not good

Information:

M = Average value (mean)

X = Score

SD = Standard Deviation

2. Normality Test

The normality test is a test carried out with the aim of seeing whether the data in the study are normally distributed or not. A good regression model if the data is normally distributed. The data normality test can determine whether the research data follows or approaches a normal distribution. Data that is well distributed is data that has a pattern like a normal distribution, in which the distribution of the data is not squint to the left or right and tapers to the left or right.

3. Multicollinearity Test

The multicollinearity test was carried out to find out whether the regression model found a correlation between the independent variables. If there is a correlation, it can be said that there is a symptom of multicollinearity. In a good regression model there should be no correlation between the independent variables, which is indicated by the Variance Inflation Factor (VIF) value around number one and the Tolerance number close to one.

4. Heterocadedasticity Test

The heteroscedasticity test is a test that aims to find out whether in the regression model used there is an inequality of variance from one residual observation to another. Homoscedasticity is a good regression model, namely a model where heteroscedasticity does not occur.

5. T test

Individual significance test (t test) is an individual regression coefficient test that is carried out to determine the independent variables gradually that have a significant or significant effect on the dependent variable (Sudjana, 2001: 325). The results of the t test were then compared with the t table obtained using the significant level (α) and n-2 degrees of freedom. The hypotheses that have been determined will be tested based on the acceptance and rejection areas determined as follows:

a. If tcount > ttable, then Ho is rejected or Ha is accepted

b. If tcount < ttable, then Ho is accepted or Ha is rejected

6. F test

The F test is used to see whether the independent variables jointly (simultaneously) have an influence on the dependent variable. The formulation of the hypothesis in this study is:

a. Ho: There is no significant effect on the independent variable on the dependent variable

b. Ha: There is a significant effect simultaneously on the independent variable on the dependent variable.

7. Test the Coefficient of Determination

Determinant coefficient denoted by statistical R2. It is an important measure in regression. Through the coefficient of determination it is able to show whether the model is well estimated or not. The good and bad measurements can be seen from how much the independent variable contributes to the dependent variable which can be seen from the R2 value. The R2 value describes how close the estimated regression line is to the actual data. If the value of the acceptance coefficient is 0 (R2=0), it means that the variation in the dependent variable cannot be explained at all. However, if the value is close to 1, it means that the dependent variable as a whole can be explained by the independent variable. The degree of good or bad of a regression equation is determined by the value of R2 which is between 0 and 1.

3. RESULTS AND ANALYSIS RESEARCH RESULT

1. Hazard Identification

Hazard identification is a systematic effort made to identify potential hazards in work activities. Potential hazards that can be identified can be useful for increasing awareness in carrying out work and taking security measures to prevent accidents. The hazard identification process is also the first step in taking preventive action on work accidents. The following is a table of the results of the hazard and risk identification process.

Table 8. Identification of Hazards and Risks

No	Conditions in the Field	Hazard Identification	Risk
1	The floor area around the swimming pool is wet and waterlogged	Slippery floor	Fell, slipped
2	Sprinkle chlorine powder/tablets on pool water	Chemical material	Skin irritation
3	The floor in the pool broke	Pool ceramic shards	Wounds on the limbs
4	The process of swimming in the pool	Awareness of visitors to the pool to know their own person	Drowning, muscle cramps
5	Bad weather such as heavy rain accompanied by lightning	The pool area can be easily struck by lightning	Health problems, struck by lightning

2. Risk Assessment

Risk assessment has the objective of identifying the value of potential risks in work accidents. Determination of the value of potential risk is based on the probability of occurrence (likelihood) and the level of severity that can result (severity). The following is the result of the risk assessment that has been carried out.

Table 9. Risk Assessment

No	Conditions in the Field	Hazard Identification	Risk	L	C	S	Risk Level
1	The floor area around the swimming pool is wet and waterlogged	Slippery floor	Fell, slipped	3	3	9	*Low Risk*
2	Sprinkle chlorine powder/tablets on pool water	Chemical material	Skin irritation	3	4	12	*Medium Risk*
3	The floor in the pool broke	Pool ceramic shards	Wounds on the limbs	3	3	9	*Low Risk*
4	The process of swimming in the pool	Awareness of visitors to the pool to know their own person	Drowning, muscle cramps	5	5	25	*Very High Risk*
5	Bad weather such as heavy rain accompanied by lightning	The pool area can be easily struck by lightning	Health problems, struck by lightning	5	5	25	*Very High Risk*

3. Risk Control

Risk control (risk control) is carried out after carrying out the process of identification and risk assessment which aims to determine priorities and how to overcome them. The following is the result of risk control.

Table 10. Risk Control

No	Conditions in the Field	Hazard Identification	Risk	L	C	S	Risk Level	Risk Control	Hirarchy Of Control
1	The floor area around the swimming pool is wet and waterlogged	Slippery floor	Fell, slipped	4	3	12	*Medium Risk*	drying Routine, brushing moss	Administrative
2	Sprinkle chlorine powder/tablets on pool water	Chemical material	Skin irritation	3	4	12	*Medium Risk*	Use standard masks	Personal Protective Equipment (PPE)
3	The floor in the pool broke	Pool ceramic shards	Wounds on the limbs	3	3	9	*Low Risk*	Routine checks, immediate repairs	Administrative
4	The process of swimming in the pool	Awareness of visitors to the pool to know their own person	Drowning, muscle cramps	5	5	25	*Very High Risk*	Prevention with appeals, trained lifeguard officers	Administrative
5	Bad weather such as heavy rain accompanied by lightning	The pool area can be easily struck by lightning	Health problems, struck by lightning	5	5	25	*Very High Risk*	Closure and security of visitors in bad weather	Administrative

4. DESCRIPTIVE STATISTICAL ANALYSIS

The description of the variable category can describe the state of the employees regarding occupational health variables, work safety variables, and work productivity variables. Descriptive analysis is also very important for analyzing respondents' responses to the completed questionnaire.

Descriptive Statistics

Table 11. Variable Statistical Descriptive Results

	N	Minimum	Maximum	Mean	Std. Deviation
OccupationalHealth	26	30	49	39.08	4.204
OccupationalWork	26	32	50	40.46	4.207
WorkProductivity	26	36	50	42.23	3.691
Valid N (listwise)	26				

Based on the table above, it can be seen the number of respondents, the average value, the minimum value, the maximum value, and the standard deviation for each variable. The table above shows the data that all variables have a minimum value of 30 and a maximum value of 50. The results of the research show that all standard deviation values for each variable are smaller than the average value, which means that the data distribution is even.

a. Description of Occupational Health Variable Analysis Results (X1)

Descriptive Statistics

Table 12. Statistical Description of Occupational Health Variables

	N	Minimum	Maximum	Mean	Std. Deviation
X1.1	26	1	5	4.04	.720
X1.2	26	4	5	4.23	.430
X1.3	26	4	5	4.31	.471
X1.4	26	4	5	4.42	.504
X1.5	26	3	5	4.19	.491
X1.6	26	2	5	4.23	.863
X1.7	26	1	5	2.85	1.287
X1.8	26	1	5	3.31	1.350
X1.9	26	1	5	3.58	.945
X1.10	26	2	5	3.92	.796
OccupationalHealth	26	30	49	39.08	4.204
Valid N (listwise)	26				

From the table it can be described that the Occupational Health Variable (X1) has a minimum value of 30, a maximum value of 49, an average value of 39.08 and a standard deviation of 4.204.

Occupational Health

Table 13. Frequency Distribution of Occupational Health Variables

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not good	2	7.7	7.7	7.7
	Not good	3	11.5	11.5	19.2
	Pretty good	8	30.8	30.8	50.0

	Good	12	46.2	46.2	96.2
	Very good	1	3.8	3.8	100.0
	Total	26	100.0	100.0	

Based on the results of research on Occupational Health Variables (X1) which are presented in the table above. It is known that the very good category has a frequency value of 1 with a percentage value of 3.8%, the good category has a frequency value of 12 with a percentage value of 46.2%, the moderate category has a frequency value of 8 with a percentage value of 30.8%, the category is not good has a frequency value of 3 with a percentage value of 11.5%, the bad category has a frequency value of 2 with a percentage value of 7.7%.

b. Description of Work Safety Variable Analysis Results (X2)

Descriptive Statistics

Table 14. Statistical Description of Occupational Safety Variables

	N	Minimum	Maximum	Mean	Std. Deviation
X2.1	26	4	5	4.31	.471
X2.2	26	4	5	4.19	.402
X2.3	26	4	5	4.38	.496
X2.4	26	1	5	3.46	1.240
X2.5	26	4	5	4.27	.452
X2.6	26	4	5	4.08	.272
X2.7	26	2	5	3.96	.999
X2.8	26	1	5	4.00	.748
X2.9	26	2	5	4.04	.599
X2.10	26	2	5	3.77	.863
OccupationalWork	26	32	50	40.46	4.207
Valid N (listwise)	26				

From the table it can be described the Work Safety Variable (X2) with a minimum value of 32, a maximum value of 50, an average value of 40.46 and a standard deviation of 4.207.

Occupational Work

Table 15. Frequency Distribution of Occupational Safety Variables

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not good	1	3.8	3.8	3.8
	Not good	5	19.2	19.2	23.1
	Pretty good	15	57.7	57.7	80.8
	Good	1	3.8	3.8	84.6
	Very good	4	15.4	15.4	100.0
	Total	26	100.0	100.0	

Based on the results of research on Work Safety Variables (X2) which are presented in the table above. It is known that the very good category has a frequency value of 4 with a percentage value of 15.4%, the good category has a frequency value of 1 with a percentage value of 3.8%, the pretty good category has a frequency value of 15 with a percentage value of 57.7%, the less category

good has a frequency value of 5 with a percentage value of 19.2%, the bad category has a frequency value of 1 with a percentage value of 3.8%.

c. Description of Results of Work Productivity Variable Analysis (Y)

Descriptive Statistics

Table 16. Statistical Description of Work Productivity Variables

	N	Minimum	Maximum	Mean	Std. Deviation
Y1	26	3	5	4.42	.578
Y2	26	4	5	4.58	.504
Y3	26	1	5	3.46	1.303
Y4	26	1	5	3.54	1.104
Y5	26	4	5	4.62	.496
Y6	26	3	5	4.12	.431
Y7	26	4	5	4.58	.504
Y8	26	4	5	4.35	.485
Y9	26	2	5	3.96	.774
Y10	26	4	5	4.62	.496
WorkProductivity	26	36	50	42.23	3.691
Valid N (listwise)	26				

From the table it can be described that the Work Productivity Variable (Y) has a minimum value of 36, a maximum value of 50, an average value of 42.23 and a standard deviation of 3.691.

Work Productivity

Table 17 .Frequency Distribution of Work Productivity Variables

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not good	3	11.5	11.5	11.5
	Not good	3	11.5	11.5	23.1
	Pretty good	9	34.6	34.6	57.7
	Good	10	38.5	38.5	96.2
	Very good	1	3.8	3.8	100.0
Total		26	100.0	100.0	

Based on the research results on the Work Productivity Variable (Y) presented in the table above. It is known that the very good category has a frequency value of 1 with a percentage value of 3.8%, the good category has a frequency value of 10 with a percentage value of 38.5%, the pretty good category has a frequency value of 9 with a percentage value of 34.6%, the less category good has a frequency value of 3 with a percentage value of 11.5%, the bad category has a frequency value of 3 with a percentage value of 11.5%.

5. CLASSICAL ASSUMPTION TEST

a. Normality test

Figure 1. Output of Normality Test Results

The results of the data normality test with the Normal P-P Plot can be concluded that by looking at the orb that is adjacent to the transverse line which is the dependent variable in the form of work productivity, it shows that the data is normally distributed.

b. Multicollinearity Test

Table 18. Output of Multicollinearity Test Results Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	15,421	7,865		1,961	,062		
	OccupationalHealth	,269	,150	,306	1,794	,086	,982	1,018
	OccupationalWork	,403	,150	,459	2,693	,013	,982	1,018

a. Dependent Variable: Occupational Work

Based on the table above, it can be concluded that all independent variables or independent variables are free from multicollinearity problems. This is because the Tolerance value of the independent variable or independent variable is the quality of service above (0.10). In addition, the VIF value for all independent variables or independent variables is below (10.00). So that with this research being free from multicollinearity problems, it can be said that there is no violation of the multicollinearity assumption in the regression model.

c. Heterocadedasticity Test

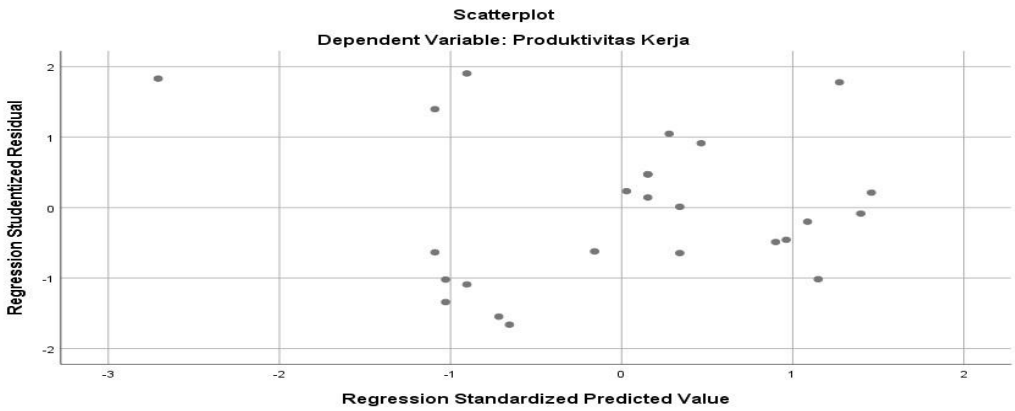

Figure 2. Output of Heteroscedasticity Test Results

Based on the picture above, it can be concluded that the majority residuals are not heteroscedasticity, which means that the residuals are homoscedasticity. This can be known through the orbs that appear and are close to each other, even though there are some orbs that are away from other orbs. This indicates that this study has a fairly good regression model.

d. T test Table

Table 1. Output of T test results Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
	B		Std. Error	Beta	t	Sig.
1	(Constant)	15,421	7,865		1,961	,062
	OccupationalHealth	,269	,150	,306	1,794	,086
	OccupationalWork	,403	,150	,459	2,693	,013

a. Dependent Variable: Work Productivity

- Known value of Sig. for the effect of X1 on Y is 0.086 > 0.05 and the t-count value is 1.794 <2.064 so it can be concluded that Ho is accepted and Ha is rejected, which means that the regression coefficient is not significant
- Known value of Sig. for the effect of X2 on Y is 0.013 > 0.05 and the t-value is 2.693 > 2.064 so it can be concluded that Ho is rejected and Ha is accepted, which means the regression coefficient is significant

e. F test Table

ANOVA[a]

Table 20. Output of Test Results F

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	116,595	2	58,297	5,985	,008[b]
	Residual	224,021	23	9,740		
	Total	340,615	25			

a. Dependent Variable: Work Productivity

b. Predictors: (Constant), Occupational Work, Occupational Health

The F statistic test basically shows whether the variables consisting of occupational health and work safety affect student satisfaction. Based on the results of the table above, it can be seen that the significance value for the effect of Occupational Health and Occupational Safety simultaneously on Work Productivity is (0.008) > (0.005) and the Fcount value is (5.985) > F table (3.42) so it can be concluded that Ha is accepted which means there is influence between Occupational Health and Occupational Safety on Work Productivity.

f. Determination Coefficient Test

Table 21. R2 Test Output Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,585[a]	,342	,285	3,121	1,882

a. Predictors: (Constant), Occupational Work, Occupational Health

b. Dependent Variable: Work Productivity

The results of the regression calculation in the table above can be seen that the coefficient of determination (Adjusted R Square) obtains a value of 0.285. This means that 28.5% of the Occupational Health (X1) and Occupational Safety (X2) variables have an effect of 28.5% on Work Productivity and there are 71.5% of other factors or variables outside this research model. The magnitude of the Adjusted R Square ranges from 0-1, which means that the smaller the Adjusted R square, the weaker

the relationship between the two variables. Conversely, if the Adjusted R square gets closer to 1, then the relationship between the two variables will be stronger.

DISCUSSION

Occupational Health and Safety is a top priority in doing a job. This places more emphasis on avoiding work accidents which are unplanned, uncontrolled and unpredictable which can interfere with work effectiveness (Wijaya et al., 2015). In this study using the HIRARC (Hazard Identification Risk Assessment and Risk Control) method. The HIRARC method is an effort to prevent and reduce the potential for work accidents, avoid and minimize risks that occur appropriately by avoiding and minimizing the risk of work accidents and controlling them in the context of carrying out activity processes so that the process becomes safe.

The results of research on the process of hazard identification (Hazard Identification), risk assessment (risk assessment), and risk control (risk control) there are 5 hazard and risk conditions in the Yogyakarta State University swimming pool, among others; (1) the floor of the pool area is slippery; (2) sprinkling of chlorine powder; (3) pool ceramic shards; (4) pool visitors; (5) bad weather. From the five hazard identifications, it can be explained that the risks in each hazard identification are in the form of; (1) slipped, fell; (2) irritation to the skin and eyes; (3) injuries to limbs; (4) drowning, muscle cramps; (5) health problems, being struck by lightning. Risk is the chance of something happening that will have an impact on the target, measured by the law of cause and effect (AS/NZS 4360: 1999).

Then the risk is measured based on the value of the likelihood and consequence. Risk assessment is an assessment process used to identify potential hazards that may occur. The purpose of a risk assessment is to ensure that the risk control of the processes, operations or activities carried out is at an acceptable level. Assessment in risk assessment is Likelihood (L) and Severity (S) or Consequence (C). Likelihood shows how likely the accident is to occur, while Severity or Consequence shows how severe the impact of the accident is. The value of Likelihood and severity will be used to determine the Risk Rating or Risk Level (Wijaya et al., 2015). The following is a description of the likelihood (L) severity (S) and consequence (C) points:

1. On a smooth floor, point (L) gets a value of 3 which means it is possible or can happen at any time. Then point (C) gets point 3 which means moderate or requires medical treatment. Then point (S) at number 9 which means it is at a low risk level.
2. When sprinkling chlorine powder (chemicals), point (L) gets a value of 3 which means possible or can occur at any time. Then point (C) gets point 4 which means major or requires medical treatment. Then point (S) at number 12 which means it is at the medium risk level.
3. For broken pool floor tiles, point (L) gets a value of 3 which means it is possible or can happen at any time. Then point (C) gets point 3 which means moderate or requires medical treatment. Then point (S) at number 9 which means it is at a low risk level.
4. For pool visitors, point (L) gets a value of 5 which means it is rare or only occurs in certain circumstances. Then point (C) gets point 5 which means catastrophic or death, poisoning and big financial loss. Then point (S) at number 25 which means it is at a very high risk level.
5. In bad weather, point (L) gets a value of 5 which means it is rare or only occurs in certain circumstances. Then point (C) gets point 5 which means catastrophic or death, poisoning and big financial loss. Then point (S) at number 25 which means it is at a very high risk level.

The results of the risk assessment can be used as a reference for controlling risk. Risk control (Risk Control) is a way to overcome the potential hazards contained in the work environment. Risk control can follow the Hierarchy of Control Approach. The risk control hierarchy is a sequence in the prevention and control of risks that may arise which consists of several levels sequentially (Tarwaka, 2008). The following are the results of risk control and hierarchy of control assessments:

1. On slippery floors, risk control can be carried out by routinely drying the wet floor, and also brushing away the moss adhering to the floor. Then the hierarchy of control is administrative.
2. When sprinkling chlorine powder (chemicals), risk control can be carried out using tools such as masks, goggles, gloves. Then the hierarchy of control is in the form of personal protective equipment (PPE).
3. For ceramic tiles on the pool floor, risk control can be carried out by routinely checking and making repairs immediately. Then the hierarchy of control is administrative.
4. For visitors, risk control can be carried out by prevention with appeals, and also have lifeguard officers who are trained in dealing with visitors. Then the hierarchy of control is administrative.
5. In bad weather, risk control can be done by closing and securing visitors during bad weather. Then the hierarchy of control is administrative.

The Influence of Occupational Health and Safety on Work Productivity

The results showed that the coefficient of determination (R2) of the independent variable had an effect on the dependent variable of 0.285, the variable Occupational Health (X1) and Occupational Safety (X2) had an effect of 28.5% on Work Productivity (Y) and there were 71.5% of factors or variables other than this research model.

Based on the results of the questionnaires that have been distributed, in which the majority responded that occupational health and safety at the Yogyakarta State University swimming pool were quite good. However, this must be balanced by paying attention to employee welfare so that employee work productivity can be maintained. According to Widyaningrum (2019) Employees who have a high level of physical, mental and social health will be able to work with optimal exertion so that high performance can be achieved and can then increase productivity. This can happen if employees have good physical and mental qualities and are aware of their own safety and that of others. Health can affect work productivity because if an employee is not in prime condition then the risk of work safety and accidents will increase. And vice versa, if the health of employees is considered and always in good condition then the risk to safety and work accidents will decrease.

4. CONCLUSION

1. The results of research on the process of hazard identification, risk assessment, and risk control, there are 5 hazard and risk conditions in Yogyakarta State University swimming pools, including; (1) the floor of the pool area is slippery; (2) sprinkling of chlorine powder; (3) pool ceramic shards; (4) pool visitors; (5) bad weather. From the five hazard identifications, it can be explained that the risks in each hazard identification are in the form of; (1) slipped, fell; (2) irritation to the skin and eyes; (3) injuries to limbs; (4) drowning, muscle cramps; (5) health problems, being struck by lightning.
2. The results of the research on the risk assessment process on a smooth floor, point (L) gets a value of 3 which means it is possible or can occur at any time. Then point (C) gets point 3 which means moderate or requires medical treatment. Then point (S) at number 9 which means it is at a low risk level. In the sprinkling of chlorine powder (chemicals), point (L) gets a value of 3 which means possible or can occur at any time. Then point (C) gets point 4 which means major or requires medical treatment. Then point (S) at number 12

which means it is at the medium risk level. For ceramic tiles on the pool floor, point (L) gets a value of 3 which means it is possible or can occur at any time. Then point (C) gets point 3 which means moderate or requires medical treatment. Then point (S) at number 9 which means it is at a low risk level. For pool visitors, point (L) gets a value of 5 which means it is rare or only occurs in certain circumstances. Then point (C) gets point 5 which means catastrophic or death, poisoning and big financial loss. Then point (S) at number 25 which means it is at a very high risk level. In bad weather, point (L) gets a value of 5 which means it is rare or only occurs in certain circumstances. Then point (C) gets point 5 which means catastrophic or death, poisoning and big financial loss. Then point (S) at number 25 which means it is at a very high risk level.

3. The results of research on risk control, on slippery floors, risk control can be done by routinely drying the wet floor, and also brushing the moss that sticks to the floor. Then the hierarchy of control is in the form of administrative. When sprinkling chlorine powder (chemicals), risk control can be carried out using tools such as masks, goggles, gloves. Then the hierarchy of control is in the form of personal protective equipment (PPE). For broken ceramic pool floors, risk control can be carried out by routinely checking and making repairs immediately. Then the hierarchy of control is in the form of administrative. For visitors, risk control can be carried out by prevention with appeals, and also have lifeguards who are trained in dealing with visitors. Then the hierarchy of control is in the form of administrative. In bad weather, risk control can be done by closing and securing visitors during bad weather. Then the hierarchy of control is administrative.
4. Occupational Health and Occupational Safety simultaneously have an influence of 28.5% on the Work Productivity of Yogyakarta State University Swimming Pool Employees and there are 71.5% of other factors or variables outside this research model.

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