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ORIGINAL ARTICLE

The Correlation between Awareness, Motivation, and Perception with Safe Behavior at Ngadiredjo Sugar Factory

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ABSTRACT

Introduction: Sugar Factory (PG) Ngadiredjo is one of the manufacturing industry sectors where there are various stages of the production to process sugarcane into white crystal sugar. One of the risks of accidents in each production process is due to worker behavior. This study aims to analyze the strength of the correlation between awareness, motivation, and perception with safe behavior in engineering and processing section workers at PG Ngadiredjo Kediri. **Methods:** This research was an observational study with a cross-sectional approach. The sample of this study was 80 workers who were determined using the total population technique. Data collection techniques used questionnaires and safe behavior observations. The data obtained were analyzed descriptively using cross-tabulation and the Spearman correlation statistical test to determine the strength of the correlation between independent and dependent variables. **Results:** The results showed that most workers aged ≥ 36 years (42.5%), had a good level of awareness, good motivation, and fair perceptions. In addition, the results showed a strong correlation between awareness and perception with safe behavior and a very strong correlation between motivation and safe behavior. **Conclusion:** Based on the research results, there is a strong correlation between awareness and perception with safe behavior and a very strong correlation between motivation and safe behavior. The level of awareness, motivation, and perceptions of a worker will directly influence the level of his safe behavior.

Keywords: awareness, motivation, perception, safe behavior

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INTRODUCTION

The manufacturing industry is an industrial sector that involves many stages of the production process in which each stage of the production process is always inseparable from the workers. Therefore, workers have a big risk of accidents while working.

Work accidents have a huge impact on both individual workers and companies. Work accidents can cause pain, disability, and even fatalities. In addition to these losses that occur to individual workers, work accidents can also have an impact on the company because it disrupts the production process as a whole due to equipment/machine damage that causes accidents or the absence of workers who can operate the equipment. This kind of accident can reduce company productivity and cause economic losses because they have to bear the costs of treatment, care, recovery, accident benefits and accident compensation for workers who have accidents. In addition, it also has an impact on reducing the amount of production and decreasing quality, loss of working hours, and temporarily suspended work activities.

According to the International Labor Organization, in 2018 there were more than 2.78 million deaths per year due to occupational accidents and occupational diseases (International Labor Organization, 2018). In addition, there were approximately 374 non-fatal injuries caused by work activities. Meanwhile, according to BPJS Ketenagakerjaan, in 2018 there were 173,415 claims of participants related to work accidents with the payment of benefits reaching 1,226 billion rupiah, equivalent to 1.22 trillion rupiah (BPJS Ketenagakerjaan, 2018).

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The causes of work accidents in the workplace especially construction industry are approximately 88% due to unsafe behavior, 10% unsafe physical conditions, and 2% unknown causes or unforeseeable factors (Harsini *et al*., 2020). In the industrial sector, according to Septiawan, Rosydah and Rahman (2018), the main factors are the high number of work accidents caused by low work safety behavior, low worker commitment to occupational health and safety so that there is a lack of awareness in implementing occupational health and safety culture while working.

In order to minimize work accidents in the workplace, the unsafe behavior of workers therefore needs to be changed into safe behavior when carrying out work activities in the workplace. The field of occupational health and safety uses a behavioral science approach to help reduce the number of work accidents that may occur in the workplace.

In the Antecedent-Behavior-Consequence (ABC) theory by Geller, it is explained that a behavior is caused by antecedent and consequent factors. Geller explains that antecedent factors are anything that precedes behavior and helps trigger a certain behavior, while consequence factors are the result of behavior that has been done by a person. Examples of safety triad antecedent factors are knowledge, motivation, skills, perceptions, awareness, personality and others (Putri, 2018).

Safe behavior according to Fara (2017) is a systematic application of psychological research on human behavior regarding safety problems in the workplace as well as workers' responses to safety that can be seen in daily behavior with work ethics in the workplace. Work experience can influence the behavior of workers to reduce the risk of accidents based on the work activities carried out. Diligence in doing work, sensitivity to dangerous situations, and safety awareness tend to increase with work experience.

Ngadirejo Sugar Factory (henceforth PG Ngadiredjo) is one of the business units of PT. Perkebunan Nusantara X (Persero) which was established in 1912. It was founded by a Dutch private company, namely NV HVA (Handels Verniging Amsterdam) until now it is under the Board of Directors of PT. Perkebunan Nusantara X (Persero). PG Ngadirejo is a manufacturing industry sector which in its work activities processes sugar cane raw materials into the main production of white crystal sugar with drip by-products which will later be used as raw materials for alcohol and spirits for medical purposes. The waste generated from the production of sugar cane into other usable sugar is boiler ash and filter press mud, which are quite good as organic fertilizers because they come from sugarcane fiber flakes which have a humus composition.

The production process at PTPN X PG Ngadiredjo Kediri uses a defecation-sulfitation process with sugar cane as a raw material into white crystal sugar with the production process being broadly divided into six units, namely milling stations, purification stations, evaporation stations, cooking stations, puteran stations, and finishing stations. These six units are supervised by the engineering and processing division which is one part or work unit with a number of workers based on the company's HR data in the engineering and processing division of 80 people, the majority of whom are male with eight hours of work.

The risk of accidents that can arise from each station includes the danger of accidental injury to limbs that are at risk of being cut, chopped, pinched, and collided with machines or production equipment and slipping during work because, during the production process, it produces and requires a lot of water. Noise hazard is also in the operation of the boiler engine which includes continuous noise. Hot boilers also run the risk of burns to the operator if not careful. The use of high electric currents in each machine and production equipment also poses a risk of electric shock to workers in engineering and processing. In addition, the risk of water vapor leaking from the evaporation station is also a risk for breathing and the presence of harmful gases generated during the production process. Work accidents based on historical data owned by the company, from 2017 to 2020 there were six work accidents, including the fall of the support plate, slipping at the evaporation station, and falling at the mill station of which these accidents contained unsafe acts such as not wearing safety shoes and keeping working even though feeling dizzy.

Those accidents are related to the workers' safe behavior. Okinawati (2017) explains that perception among workers impacts the understanding of occupational health and safety of the workers which also can impact to their daily work behavior. Sirait and Paskarini (2017) also explain that safe behavior is influenced by knowledge, awareness, motivation, company rules, etc. The condition in PG Ngadiredjo is the workers already assumed that their workplace

is safe and not risky. This assumption is related to awareness, motivation, and perception that they have which also can impact their safe behavior. Therefore, by knowing their level of awareness, motivation, and perception, the level of safe behavior hopefully can be known and improved to be better work behavior.

After knowing the level of safe behavior of the workers in the engineering and processing, it is hoped that the productivity of PG Ngadiredjo will increase by producing quality products and providing the best service to customers, as well as creating a safe and comfortable work environment for workers in carrying out their daily work activities. The company also can know the level and factors that influence safe behavior so that it can improve safe behavior when working for workers. The company can also pay more attention to the occupational safety and health of its workers and provide guarantees for work accidents ultimately resulting in a decrease in the number of work-related accidents at PG Ngadiredjo.

Based on the preliminary studies that have been carried out, it is found that problems related to the safety and health of workers are found in which they consider their workplaces to be no longer risky, thereby reducing workers' awareness of risks that came from working activities. By considering these conditions, the objective of this research was to analyze the correlation between awareness, motivation, and perception with safe behavior among engineering and processing workers at PG Ngadiredjo Kediri.

METHODS

The type of this research was observational study. The research design used was cross-sectional, in which the researcher identified the correlation between awareness, motivation, and perception with safe behavior among engineering and processing workers at PG Ngadiredjo over a certain period. This research has received an ethical certificate from the Airlangga University Faculty of Dental Medicine Health Research Ethical Clearance Commission and the number of the ethics certificate is 061/HRECC. FODM/II/2021.

Data analysis technique in this study used the Spearman correlation test to analyze the correlation between awareness, motivation, and perception with safe behavior. This research was conducted at working area in PG Ngadiredjo Kediri. Data retrieval up to data processing was carried out for approximately two months from March to April 2021. The population in this study was all the workers in the engineering and processing section. The population was around 80 workers. The sampling was done using a total population method by taking all members of the population as a sample. The researcher took samples of all workers in the engineering and processing section with a sample size of 80 people.

The variables used in this study consisted of independent variables that are influential and dependent variables that are influenced. The independent variables in this study were awareness, motivation, and perception, while the dependent variable was safe behavior.

The research data consisted of primary data and secondary data. Primary data in this study were collected from the use of questionnaires and observation as research instrument. The primary data used included awareness, motivation, and perception. Observation instrument in this research used the Critical Behavior Checklist that helped to observe safe behavior among the workers over four days (to minimize data bias). Meanwhile, the secondary datum was the company profile of PG Ngadiredjo. Total safe behavior was measured by using the Safe Behavior Index by Geller.

$$Safe\ Behavior\ Index = \frac{Safe\ Observed}{Safe\ Observed + Unsafe\ Observed} x\ 100\%$$

The percentage of Safe Behavior Index was obtained from the result of calculation above which was then classified into three categories such as good, fair, and poor. “Good” category was given to Safe Behavior Index percentage ≥ 85%: “fair” was given to Safe Behavior Index percentage at between 60% to 84.9%; and “poor” was given to Safe Behavior Index percentage ≤ 59.9%. The categories in determining Safe Behavior Index were not clearly explained by Geller but there were previous studies that used this category as reference (Sirait and Paskarini, 2017).

RESULT

Safe Behavior among Engineering and Processing Workers at PG Ngadiredjo

Total safe behavior among workers was differentiated by three categories such as good,

fair, and poor. Table 1 shows the result of total safe behavior among workers in four observation days. Based on the distribution result in this aspect, it shows that most workers have fair level of safe behavior as many as 46 workers (57.5%).

Awareness among Engineering and Processing Workers at PG Ngadiredjo

Awareness among workers was differentiated by two categories such as good and fair. Table 2 shows the result of awareness among workers. Based on the distribution result in this aspect, it shows that most workers have good level of awareness as many as 45 workers (56.25%).

Motivation among Engineering and Processing Workers at PG Ngadiredjo

Motivation among workers was differentiated by two categories such as good and fair. Table 3 shows the result of motivation among workers. Based on the distribution result in this aspect, it shows that most workers have good level of motivation as many as 41 workers (51.25%).

Perception among Engineering and Processing Workers at PG Ngadiredjo

Perception among workers was differentiated by two categories such as good and fair. Table 4 shows the result of perception among workers. Based on the distribution result in this aspect, it shows that most workers have fair level of perception as many as 52 workers (65%) and fair level of perception by 28 workers (35%).

The Correlation between Awareness and Safe Behavior among Engineering and Processing Workers at PG Ngadiredjo

Table 5 shows the result of cross-tabulation between awareness and safe behavior among workers with the result that most workers (60%) who had good level of awareness had fair level of safe behavior. Based on Spearman correlation test, the magnitude of the correlation between the level of awareness and safe behavior among the workers shows that the correlation coefficient shows a value of 0.792, which means there is a strong correlation between awareness and safe behavior

Table 1. Distribution of Total Safe Behavior among Engineering and Processing Workers at PG Ngadiredjo 2021

Safe Behavior	Frequency (n)	Percentage (%)
Good	14	17.5
Fair	46	57.5
Poor	20	25.0
Total	80	100.0

Table 2. Distribution of Awareness among Engineering and Processing Workers at PG Ngadiredjo 2021

Awareness	Frequency (n)	Percentage (%)
Good	45	56.25
Fair	35	43.75
Total	80	100.0

Table 3. Distribution of Motivation among Engineering and Processing Workers at PG Ngadiredjo 2021

Awareness	Frequency (n)	Percentage (%)
Good	41	51.25
Fair	39	48.75
Total	80	100.0

Table 4. Distribution of Perception among Engineering and Processing Workers at PG Ngadiredjo 2021

Awareness	Frequency (n)	Percentage (%)
Good	28	35
Fair	52	65
Total	80	100.0

Table 5. The Cross-Tabulation of Awareness and Safe Behavior among Engineering and Processing Workers at PG Ngadiredjo 2021

Awareness	Safe Behavior						Total		C
	Good		Fair		Poor				
	n	%	n	%	n	%	N	%	
Good	7	15.6	27	60	11	24.4	45	100.0	0.792
Fair	7	20	19	54.3	9	25.7	35	100.0	

among workers in the engineering and processing section PG Ngadiredjo Kediri.

The Correlation between Motivation and Safe Behavior among Engineering and Processing Workers at PG Ngadiredjo

Table 6 shows that the result of cross-tabulation between motivation and safe behavior among workers with the result that most workers (59%) who had fair level of motivation also had fair level of safe behavior. Based on Spearman correlation test, the magnitude of the correlation between the level of motivation and safe behavior among the workers shows that the correlation coefficient shows a value of 0.986, which means there is a very strong correlation between motivation and safe behavior among workers in the engineering and processing section PG Ngadiredjo Kediri.

The Correlation between Perception and Safe Behavior among Engineering and Processing Workers at PG Ngadiredjo

Table 7 shows the result of cross-tabulation between perception and safe behavior among workers in that the most workers (64.3%) who had good level of perception had fair level of safe behavior. Based on Spearman correlation test, the magnitude of the correlation between the level of perception and safe behavior among the workers shows that the correlation coefficient has a value of 0.799, which means there is a strong correlation between perception and safe behavior among workers in the engineering and processing section PG Ngadiredjo Kediri.

DISCUSSION

Based on the results of research carried out, it can be seen that 80 workers in the engineering and processing section of PG Ngadiredjo Kediri who became respondents in this research were all male and most workers' were ≥ 36 years old. The results of research carried out on 80 engineering and processing section workers shows that most workers already had good level of awareness, good level of motivation, and fair level of perception. Total safe behavior among workers shows that most of the workers had fair level of safe behavior.

Safe Behavior among Engineering and Processing Workers at PG Ngadiredjo

Safe behavior, according to Fara (2017), is a systematic application of human behavior regarding safety issues in the workplace as well as workers' responses to work safety which can be seen from daily behavior with ethics or work implementation rules in the workplace. Safe behavior can be measured by direct observation or observation of the behavior of workers when carrying out their work activities.

Human behavior at work can create risks related to work safety. Unsafe behavior is considered to be the result of wrongdoing by the workers directly involved. Behavioral factors are human aspects and these factors are paid less attention than

Table 6. The Cross-Tabulation of Motivation and Safe Behavior among Engineering and Processing Workers at PG Ngadiredjo 2021

Motivation	Safe Behavior						Total		C
	Good		Fair		Poor				
	n	%	n	%	n	%	N	%	
Good	8	19.5	23	56.1	10	24.4	41	100.0	0.986
Fair	6	15.4	23	59	10	25.6	39	100.0	

Table 7. The Cross-Tabulation of Perception and Safe Behavior among Engineering and Processing Workers at PG Ngadiredjo 2021

Perception	Safe Behavior						Total		C
	Good		Fair		Poor				
	n	%	n	%	n	%	N	%	
Good	6	21.4	18	64.3	4	14.3	28	100.0	0.799
Fair	8	15.4	28	53.8	16	30.8	52	100.0	

environmental factors. Unsafe behavior is the basic cause of most near misses and accidents in the workplace. Therefore, it is necessary to conduct in-depth observations of workers regarding unsafe work behavior (Priatna and Andika, 2019). This study uses the Critical Behavior Checklist sheet as an instrument to observe worker behavior. The observed behavior is as follows : proper use of Personal Protective Equipment (PPE) (helmets, earplugs/earmuffs, safety shoes, medical/non-medical masks, and gloves) as well as proper checks and proper storage of PPE, implementation of work instructions and housekeeping, use of cellphones at work, rules/work procedure for safe and correct operation of tools, storage of hazardous materials (B3) related to production, not show risky behavior while working, always be careful, and minimize excessive jokes with coworkers.

Based on the results of the observation of safe behavior of workers in the engineering and processing section of PG Ngadiredjo, it can be seen that most of the workers have behaved safely in working with fair categories. However, there are still workers who behave unsafe or have safe behavior in the less category at work because there are still many workers who do not use ear plugs/ear muffs when working, do not use masks properly considering that we are currently still in the Coronavirus Disease-19 (COVID-19) pandemic, workers still activate their cellphones while working, and still joke with fellow workers when doing work activities where these things have a potential hazard to the safety and health of workers in the Processing Section of PG Ngadiredjo.

Safe behavior observations were carried out four times, namely for four consecutive days aimed at reducing the behavioral bias of each worker. On the first day of observation, workers with fair safe behavior category were shown by the percentage of 43.8%, good category by 27.5%, and less category by 28.7%. On the second day, the safe behavior category was moderately increased to 53.5%, while the good and poor categories decreased to 25.2% for the good category and 21.3% for the less category. On the third day, the safe behavior category moderately decreased to 43.8%, while the good and poor categories increased to 27.5% for the good category and 28.7% for the poor category.

On the fourth day, safe behavior in the adequate and good categories decreased to 38.5% for the moderate category and 25.1% for the good category. Meanwhile, for safe behavior in the less category, it rose to 36.4%.

There was no significant difference in the observation of safe behavior during the four days from the first to the fourth day because most of the workers already had fair safe behavior. However, on the fourth day, the safe behavior category of workers had the largest percentage compared to the first, second, and third days. This is in accordance with behavioral theory which explains that when someone is observed his behavior will improve, but after the third observation and so on, they will feel bored and return to his actual behavior.

The existence of safe behavior is influenced by two factors, namely antecedents and consequences. An antecedent is a triggering factor that causally precedes and causes a change in a person's behavior. Factors that act as antecedents of workers in the engineering and processing section of PG Ngadiredjo include awareness, motivation, and perception.

Awareness among Engineering and Processing Workers at PG Ngadiredjo

Awareness is a when a person states that he knows and understands clearly what is in his mind in the form of memories, thinking results, reason, ideas, and intentions (Notoatmodjo,2012). There are two kinds of awareness, namely passive awareness and active awareness, where active awareness is a condition in which a person accepts all stimuli given, either internal or external stimuli, and focuses on initiative and selects the stimulus given.

Safe behavior in workers is based on awareness of their work activities and workplace, so the behavior will last long because it is truly felt and carried out consciously and without coercion. In this research, questions were asked about several issues concerning the awareness of respondents regarding being aware of the work environment that poses a risk to occupational safety and health, being aware of the dangers posed by unsafe behavior, being aware of the importance of Personal Protective Equipment (PPE) and behaving safely at work.

Based on the result of this research, it shows that the most workers have a good level of awareness about their work environment that is at risk and the dangers of unsafe behavior; therefore, PPE and habit of safe behavior are needed while working. According to Uzuntarla, Kucukali and Uzuntarla (2020), good awareness can determine the perceptions and judgments of workers about

responsibilities and personal abilities to avoid risk in the workplace.

Motivation among Engineering and Processing Workers at PG Ngadiredjo

Motivation is psychological factors that indicate an individual's interest in work, a sense of satisfaction and responsibility for the work activities. A person's behavior is generally motivated by the desire to obtain certain goals. Motivation is an important thing to note, because with motivation an employee will be able to have a high spirit in carrying out the tasks assigned. Without motivation, an employee cannot fulfill his duties properly and the productivity will decrease (Darmawan, Hamid and Mukzam, 2019).

Notoatmodjo (2012) explains that motivation is a reason for someone to take an action in order to meet their needs, which are influenced by internal and external factors. Internal factors that influence motivation come from within oneself, including individual characteristics, educational level, past experiences and future desires and hopes. Meanwhile, external factors that come from outside the individual and can affect motivation include the work environment, work demands, and encouragement from management.

Workers who have good motivation at work will be willing and trying their best to behave safely while working. Motivation can also make workers more careful in taking actions that affect their safety (Tristanti, 2017).

The result of this research shows that most workers already had good level of motivation. Good motivation can be shown by the existence of motivating factors that support workers to behave safely and work in accordance with regulations or procedures. The existence of a reward given to workers who have behaved safely can be a motivation that supports and encourages workers to continue to carry out safe behavior at work and will be a new motivation for other workers to participate in safe behavior. Direct attention and support, both from among workers, supervisors, and company leaders, can be a motivation for workers to do work based on safe behavior. Motivation can be given to remind workers who violate the rules in the company not to do it again (Sirait and Paskarini, 2017).

Motivation among workers also can be impacted by the safety leadership and attitudes on safety compliance and participation. Individual safety motivation can significantly be impacted by the leadership actions such as clear safety policies and rules, supportive work environment, rewards for safe work, encouraging workers to involve in safety issues, regular monitoring of compliance with safety rules and instructions (Basahel, 2021).

Perception among Engineering and Processing Workers at PG Ngadiredjo

Perception is experience regarding objects, events, or correlations obtained from how to summarize information and interpret it (Fuady, Arifin and Kuswarno, 2017). In the Health Belief Model theory, it is explained that individual perceptions are the benefits of taking action in the form of taking action such as choosing preventive action for work accidents by increasing compliance with Occupational Health and Safety (OHS) regulations in the company.

The result of this research shows that most of the workers have a fair level of perception. Some people will accept danger as a real risk to them and try to avoid it. Some will recognize the risk but perceive it as a challenge to their abilities. This perception can lead to unsafe actions in the face of danger and increase the likelihood of someone getting into an accident The existence of a positive relationship between the perception of workers' occupational safety and health with worker behavior means that the better the perception of workers' occupational safety and health, the better the worker's OHS behavior (Kumala, 2016).

In work accident prevention behavior, attitudes are influenced by perceptions and beliefs about the threat of accidents and the advantages and disadvantages of taking these preventive actions. Therefore, knowledge of the dangers posed by the work accident and its preventive measures need to be given to workers (Septiani, 2018).

The Correlation between Awareness and Safe Behavior among Engineering and Processing Workers at PG Ngadiredjo

Questions were asked in this research about the awareness of respondents regarding being aware of a risky workplace that poses a risk to occupational safety and health, being aware of the dangers caused from unsafe behavior, being aware of the importance of Personal Protective Equipment (PPE) and behaving safely while working. Most workers already have good awareness about their work environment that is at risk and the dangers

of unsafe behavior; therefore, Personal Protective Equipment (PPE) and habit of safe behavior are needed while working.

The results of research regarding level of awareness and safe behavior among workers show that good awareness is important to be the basis for safe behavior at work. This is shown from the unidirectional and strong correlation between the two, which means that good awareness will tend to behaving safely, but it is also possible that fair awareness can also produce good safe behavior. There is a strong correlation between awareness and safe behavior according to Uzuntarla, Kucukali and Uzuntarla (2020), who concluded that increasing the level of safety awareness among workers can lead to an increase in safety behavior levels.

This result in line with previous research by Sirait and Paskarini (2017) that explains results of the distribution of awareness to behave safely at work to construction workers at the PT. X West Java in 2015 and showed that 50% of the total workers who were respondents at the PT. X West Java has a good awareness to behave safely at work. This means that workers have awareness, they are willing and able to perform safe behavior while working. This can be due to the willingness and ability to behave safely at work. If construction workers have good awareness, there can be safe behavior when doing work because basically there is good awareness among workers themselves.

Indirectly or unconsciously, a person can behave safely because of other factors that underlie and influence a person to do so, such as already having a strong desire to behave safely that arises from within themselves without any coercion or intervention from other parties. This awareness makes the workers behave in the way they work by themselves, without the need for supervision or warning. Safe behavior arising from good awareness makes the behavior lasting. On the other hand, if the workers have a lack of awareness, the safe behavior of the workers is only temporary because the workers still feel compelled to behave safely. Another factor is the sense of caring from each individual to dare to reprimand and remind fellow construction workers when doing unsafe acts at work.

The research by Fara (2017) shows there is a moderate correlation between awareness and safe behavior with p (0.004) < 0.05 among the civil workers in PT. Indonesia Power UP Semarang. All research results above clarify Neal and Griffin's statement that one of the factors that can be an antecedent/activator of performance in one's safety is awareness.

The Correlation between Motivation and Safe Behavior among Engineering and Processing Workers at PG Ngadiredjo

Motivation items asked in this research are about the motivation of workers to be safe and healthy when doing work according to the rules of work procedure, comply with the work instruction to get reward/avoid punishment, also work safely for the sake of family and as not to cause significant losses. Most respondents already have good motivation about safe behavior aiming to stay safe and healthy during work, fear punishment and sanctions when violating, have a strong desire to work safely so as not to cause significant losses, and work safely for the sake of the family. Good motivation can be shown by the existence of motivating factors that support workers to behave safely and work in accordance with regulations or procedures. The existence of rewards given to workers who have behaved safely can be a motivation that supports and encourages workers to continue to perform safe behavior at work and will be a new motivation for other workers to participate in safe behavior. Direct attention and support, both from workers, supervisors, and company leaders can be a motivation for workers to do work based on safe behavior. Motivation can be given to remind workers who violate the rules in the company not to do it again.

The results of this research toward level of motivation and safe behavior show that good motivation is important to be the basis for safe behavior at work. This is shown from the correlation between motivation and safe behavior that there is a very strong correlation between motivation and safe behavior among workers in the engineering and processing section of PG Ngadiredjo Kediri, which means good motivation will tend to behave safely, but it is also possible that fair motivation can also produce the good safe behavior. Most workers already had good motivation about safe behavior with the aim to stay safe and healthy while working, afraid of being punished and penalized when violating the regulations, having a strong desire to work safely so as not to cause significant harm and working safely for the sake of the family.

This result contradicts the research by Retnani and Ardyanto (2013), which explains that there is no significant correlation between perception and safe

behavior among workers in PT. Pupuk Kalimantan Timur shown by correlation value p (1.000) > 0.05. This can happen because of workers sometimes behaving safely just because they avoid work accident or disease not based on their perception of the hazard, danger, and the risk of accidents in their work environment as they perceive it. Otherwise, if the workers have a bad perception, the workers will only think about work they can resolve quickly without thinking about the risks and dangers of accidents, so this can have an impact on the creation of unsafe behavior.

This result in line with previous research by Fitriani and Nawawiwetu (2017) which explains that motivation has a strong correlation with safe behavior among workers at PT Lotus Indah Textile with contingency coefficient value of 0.622. Based on that research, in addition to motivating workers to behave safely, management must also provide facilities related to the formation of safe behavior, such as the availability of safety facilities. PT Lotus Indah Textile Industries has provided safety facilities with good categories in the form of PPE for all workers, safety signs in the work area, and safety posters.

This research is also in line with the research previously conducted by Hajrah, Naiem and Jafar (2017), that explains the correlation between motivation and safe behavior obtained by contingency coefficient p = 0.000 < 0.05. This result based on safe work motivation shows, respondents who have weak motivation are more likely to do unsafe behavior than respondents who have strong motivation. Correlation statistical test results show that there is a significant effect between motivation and safe behavior. It can be concluded that the lower the motivation respondents, the higher to behave unsafely, and the higher the motivation of the respondents will be lower to behave unsafely.

However, it is the opposite of research by Supardi and Muliawan (2019) that shows there is no correlation between motivation with safe behavior among construction workers with p (0.3277) > 0.05. Also with the research conducted by Ramadhani, Kurniawan and Jayanti (2018) that explains motivation does not have a significant correlation with safe behavior among workers at PT Coca Cola Bottling Indonesia which is obtained from p (0.679) > 0.05. This can possibly happen because there is no support from companies in creating an environment that facilitates safe behavior. This is possible due to failed labor in fulfilling satisfaction with intrinsic factors like success in achieving something, getting recognition, sense of responsibility, career advancement, sense of professionalism and intellect. The high motivation without company support and ability in fulfilling the intrinsic factor will simply become motivation without actualization that can increase the creation of safe behavior.

Affidah and Sari (2016) explain, based on their research conducted with multiple logistic regression statistical tests between motivation and accident, that the motivation variable is obtained at the value of sig < (0.05) i.e. sig = 0.035 which mean that motivation affects the occurrence of accidents at work for employees in the sugar factory production division. In addition to increase employee motivation, it is necessary to provide protection for employees during work; this can reduce the occurrence of accidents among workers. This protection is provided with the intention that workers feel safe and comfortable working in their work environment. Protection for workers while carrying out work by involving workers in the Labor Social Security program is an obligation that must be carried out by the company.

The Correlation between Perception and Safe Behavior among Engineering and Processing Workers at PG Ngadiredjo

In this study, questions were asked about several things concerning respondents' perceptions of a safe workplace or even the risk of occupational accidents, working safely by complying with instructions and regulations which can protect workers and make work time more efficient. Most workers already had an adequate perception about the risky workplace, working safely by complying with working procedures and regulations for the sake of protecting the workers and making working time more efficient. Some people will accept danger as a real risk to them and try to avoid it. Some will recognize the risk but perceive it as a challenge to their abilities. This perception can lead to unsafe actions in the face of danger and increase the likelihood of someone having an accident. In work accident prevention behavior, attitudes are influenced by perceptions and beliefs about the threat of accidents and the advantages and disadvantages of taking these preventive actions. Therefore, knowledge about the dangers posed by work accidents and their preventive measures need to be given to workers (Septiani, 2018).

Based on the research by Susetyo and Ratnaningsih (2016), the more positive the

perception of occupational health and safety owned by workers, the lower the work stress they experience. On the other hand, the more negative the perception of occupational health and safety that workers have, the higher the work stress they experience. This result was obtained from hypothesis testing using simple regression analysis technique and the results obtained coefficient rxy = -0.369 with a correlation significance level of p = 0.000 (p <0.01). The correlation coefficient shows that there is a negative relationship between the perception of occupational health and safety and work stress.

The results of research regarding level of perceptions and safe behavior show that good perceptions are important to be the basis for safe behavior at work. This is shown from the unidirectional and strong relationship between the two. The correlation between perception and safe behavior among workers can be seen through the correlation coefficient value of 0.799, which means that there is a strong correlation between perception and safe behavior among workers in the engineering and processing section PG Ngadiredjo Kediri, which means good perception will tend to behaving safely, but it is also possible that fair perception can also produce correct behavior.

This result in line with previous research by Fitriani and Nawawiwetu (2017) that explains perceptions have a strong correlation with safe behavior among workers at PT Lotus Indah Textile with a contingency coefficient of 0.797. Based on that research, it can be concluded that workers who have a perception of danger and accidents in the workplace know that in their workplace there are dangers and know the accidents can be occur but are not comprehensive, this can produce fair safe behavior to avoid this as perceived

The research by Fara (2017) also shows there is correlation between perception and safe behavior with p (0.007) < 0.05 among the civil workers in PT. Indonesia Power UP Semarang. This can happen because workers have the right perception of the dangers and risks of accidents in their work environment so that workers behave safely to avoid the dangers and risks of work accidents as they perceive them. Conversely, if the workers have an incorrect perception, the workers will only think that their work can be completed quickly without thinking about the risks and dangers of accidents, so that this can have an impact on the creation of unsafe behavior.

Meanwhile research conducted in welding workshop workers by Dzulfiqar (2016) shows the result of the bivariate analysis obtained p value = 0.044 (< = 0.05), which means there is a relationship between perceptions of risk and safety behavior in welding workshop workers. The OR (Odds Ratio) value in this study is 0.103, which means that respondents with perception of bad risk have a risk of unsafe safety behavior as much as 0.103 times greater than respondents who have a good perception of risk. This research suggests that a worker tends to engage in unsafe behavior for several reasons, one of which is a poor level of perception of the dangers/risks in the workplace. Research by Rahadi, Anward and Febriana (2013) also indicates that safety behavior can be assumed to increase if the perception of the individual's physical work environment is higher or better. The effective contribution of the perception of the physical work environment illustrates that the individual's assessment of a certain level of stimulation is related to spatial organization, architectural design, ergonomics equipment, ambient conditions of the workplace such as temperature, lighting, sound, and air quality, all of which can promote safety behavior.

CONCLUSION

Based on the research, most workers have a good level of awareness and motivation also a fair level of perception and safe behavior. There is a strong correlation between awareness and perception with safe behavior and a very strong correlation between motivation and safe behavior. So, the level of awareness, motivation, and perception of a worker will directly influence the level of his safe behavior.

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