East Asian Journal of Multidisciplinary Research (EAJMR)
Vol. 2, No. 1, 2023 : 309-318

Description of the Safety Climate Using the NOSACQ-50 Method for Employees in the Production Section at Pt. X in 2021

Willia Novita Eka Rini[1]*, Septiani Gracia[2]
Universitas Jambi
Corresponding Author: Willia Novita Eka Rini
willianovita95@gmail.com

A R T I C L E I N F O

Keywords: Safety Climate, NOSACQ-50, Production Section

Received : 10 November
Revised : 10 December
Accepted: 10 January

A B S T R A C T

This study was to overview of the safety climate in PT X to improve safety in PT X. This study is a quantitative research with a cross sectional approach. Sample counts use the total sampling method with a total sample of 117. Most of respondents were young adults of male sex, and the higher education level with tenure status above 5 years. An overview of priority dimensions and management's commitment to safety is a "good" category with a mean value of 3, the dimension of empowerment of safety management is a "good" with a mean value of 3.1, safety management fairness dimensions is a "good" category with a mean value of 3.2, the dimensions of workers' commitment to safety is a "good" category with a mean value of 3.1, the priority dimensions of worker safety and not tolerated risk of hazards is a "bad" category with a mean value of 2.9, the dimensions of learning, communication and trust in colleagues is a "good" category with a mean value of 3.2, the dimensions of trust in the efficiency of the implementation of the safety system is a "good" category with a mean value of 3. The safety climate overview of PT X has been included into quite well category, within 6 dimensional results is a "good" category, and 1 dimension result is a "bad" category.

DOI: https://10.55927/eajmr.v2i1.2622
ISSN-E: 2828-1519
https://journal.formosapublisher.org/index.php/eajmr/index

INTRODUCTION

Occupational Safety and Health (K3) is a form of activity that aims to protect and protect workers occupational safety and health through efforts to prevent work accidents and PAK by identifying potential objects. The goal is to create a comfortable and healthy workplace to minimize the risk of accidents and illness (Riduan, 2015). Hämäläinen et al, 2017 stated in the International Labor Organization (ILO) (2018) that almost a thousand times more non-fatal work accidents than fatal work accidents occur every year. An estimated 374 million workers suffer non-fatal accidents, many of which seriously affect workers' earning capacity. According to the latest ILO estimates, there are 2.78 million workers affected by their work of which 2.4 million (86.3%) die as a result of CID, while more than 380 thousand (13.7%) are caused by work accidents (ILO, 2018). According to data from the West Java Central Bureau of Statistics, there were 24.33 million people in the workforce in February 2020 and an increase of 0.50 million people from 2019. In addition, the Labor Force Participation Rate (TPAK) also experienced an increase of 0.27% and in the last year there was an increase in unemployment of 28.35 thousand people, but there was a 0.04% decrease in TPT to 7.69% in February 2020.

The number of annual work accident cases at the national level continues to decline, based on data from the Ministry of Manpower of the Republic of Indonesia (KEMENAKER RI) shows that in 2015 the number of cases reached 110,285 people, in 2016 there were 105,182 people, and in 2017 there were 80,392 people. Accidents at work, however, require serious attention. Therefore, it is very important to improve K3. Environmental, Health, and Safety Guidelines for Cement Lime Manufacturing in 2018, states that the cement production process is a very energy consuming process and has various potential hazards that affect the environment, health and safety in the cement industry. The most significant OHS influences during the operational phase of cement and lime production come from dust, heat, noise, vibration, physical hazards, radiation, chemical hazards, and industrial hygiene issues. Common hazards encountered in the cement industry include: slipping/tripping/slipping/falling, pinching fingers, electrocution, exposure to dust, noise, and heat pollution.[5] Occupational accidents in the production department at PT. X has increased in the last 3 years, starting from zero accidents, minor injuries and injuries.

THEORETICAL REVIEW

Safety culture is a way to reduce the potential for large-scale hazards, and work-related accidents. Safety culture has a goal, namely that all workers are responsible for and contribute to safety in the workplace. The importance of this safety culture is due to accidents caused by a lack of concern for safety. The importance of a sense of awareness or concern that affects the safety of workers, society, the environment. Hudson (2007) argues that workplace accidents can be overcome by adopting work safety methods. Occupational safety is a work management that is effectively implemented in the work environment. The most important factor in work safety management is humans who are the cause of safety or hazard factors in the workplace (Krause et.al, 1999).

Based on the results of observations made by researchers, employees in the production department have a greater risk of work accidents. PT. X is a company based in the manufacturing sector that produces instant cement or mortar cement which in its production process uses heavy and modern equipment from the stages of mining raw materials, heating, grinding and refining materials which can affect the safety and health of employees and have a high risk of work accidents. . In the use of operating machines besides having the ability to master sophisticated technology, knowledge and protection about K3 is also important because it can minimize the danger of accidents that will occur. As can be seen from the production stage, it cannot be denied that there are various types of potential, risks and hazards of work accidents that can endanger workers during the production process. For this reason, researchers are interested in seeing an overview of the safety climate using the NOSACQ-50 method for employees in the production department at PT.X.

METHODOLOGY

This type of research is a non-experimental quantitative research using a descriptive study. This research will be conducted at PT. X Cirebon City, West Java Province. The time in this research was carried out from August to September 2021. The population in this study were all Cement Factory workers at PT. X in the production department, totaling 117 employees using a total sampling technique, namely the total population is equal to the number of samples, totaling 117 employees. Data collection used a questionnaire whose grid was guided by NOSACQ-50 which consisted of 50 questions and was divided into 7 dimensions, namely: 1) Priority and management commitment to safety, 2) Empowerment of safety management, 3) Fairness of safety management, 4) Commitment workers towards safety, 5) Prioritize worker safety and no risk of danger is tolerated, 6) Learning, communication and trust in colleagues, and 7) Trust in the efficiency of implementing safety systems. Data processing is carried out using statistics with a frequency descriptive test, namely a test used to provide an overview or description of a data that is known from the mean value. With N being the number of dimensions, the average value (mean) is interpreted into measurement indicators as shown in Table 1.

Table 1. Reference Value of Each Dimension of Safety Climate Measurement Results

Skala	Keterangan
≥3.30	Baik
3.00-3.30	Cukup Baik
2.70-2.99	Cukup Rendah
≤2.70	Sangat Rendah

Sources: Det Nationale Forskningscenter for Arbejdsmiljo , 2018

RESULTS

Univariate Analysis of Respondent Characteristics

The following is the result of Univariate analysis based on the characteristics of the respondents.

Table 2. General description of the characteristics of employees in the production department at PT X

Variabel	Jumlah (n)	Persentase (%)
Gender		
Male	75	64,1
Female	42	35,9
Age		
20-29 th	45	38,5
30-39 th	54	46,2
40-50 th	18	15,4
Educational status		
Low (SD-SMP)	32	27,4
Tall (SMA-Perguruan Tinggi)	85	72,6
Years of service		
New (≤ 5 Tahun)	56	47,9
Long (≥ 5 Tahun)	61	52,1
No complaints	20	24,7
Total	117	100

Univariate Analysis of Safety Climate

The following is the result of Univariate analysis based on the 7 dimensions of safety climate.

Table 3. General description of the safety climate in the production department at PT. X

Variabel	Jumlah (n)	Persentase (%)
Dimensi 1		
≥3.30	18	15,4
3.00-3.30	56	47,9
2.70-2.99	36	30,8
≤2.70	7	6
Dimensi 2		
≥3.30	27	23,1
3.00-3.30	72	61,5
2.70-2.99	14	12
≤2.70	4	3,4
Dimensi 3		
≥3.30	36	30,8

3.00-3.30	59	50,4
2.70-2.99	20	17,1
≤2.70	2	1,7
Dimensi 4		
≥3.30	47	40,2
3.00-3.30	25	21,4
2.70-2.99	11	9,4
≤2.70	34	29,1
Dimensi 5		
≥3.30	15	12,8
3.00-3.30	57	48,7
2.70-2.99	17	14,5
≤2.70	28	23,9
Dimensi 6		
≥3.30	31	26,5
3.00-3.30	68	58,1
2.70-2.99	16	13,7
≤2.70	2	1,7
Dimensi 7		
≥3.30	13	11,1
3.00-3.30	66	56,4
2.70-2.99	36	30,8
≤2.70	2	1,7
Total	117	100

The Average Value (Mean) of the Safety Climate Dimension

The following is a graph of the average value (mean) of the safety climate dimension.

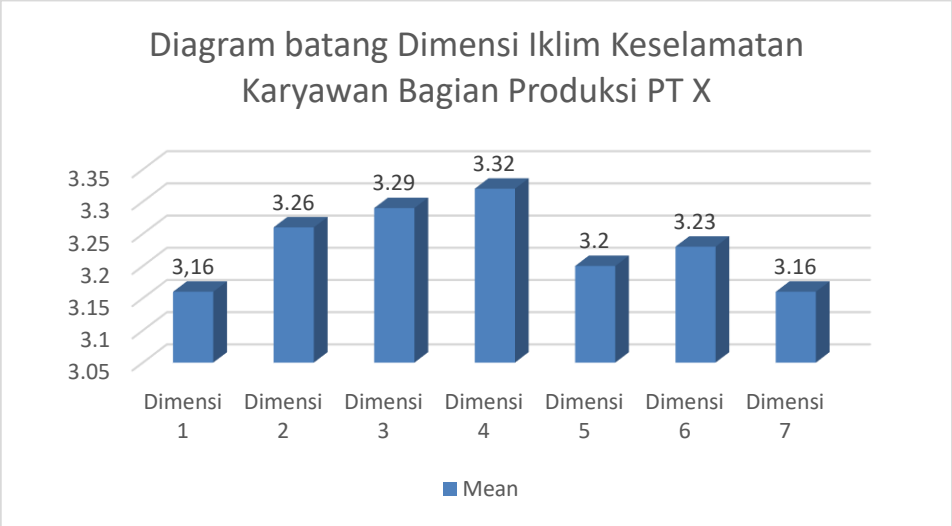

Figure 1. The Average Value (Mean) of the Safety Climate Dimension

DISCUSSIONS

1. Overview of Respondent Characteristics
   Based on the summary and the percentage of respondents in this study, all employees in the production department of PT. X with the number of respondents as many as 117 employees. Based on gender characteristics, the number of male respondents was greater, namely 64.1%. Based on age characteristics, this study was divided into 3 age groups, namely 20-29 years, 30-39 years and 40-50 years. In the results of this study it was found that the most respondents were in the age range of 30-39 years, namely 46.2%. Based on the characteristics of educational status, the number of respondents who had a high level of education dominated by 72.6%. Based on the characteristics of length of service, the results of this study show that the majority of employees who work are old workers with a working period of >5 years, as much as 52.1%.

2. Overview of Work Safety Climate
   The results of the work safety climate assessment in the production department at PT. X can be seen in Figure 1.

In dimension 1, namely the priority dimension and management commitment to safety, it is known that in general employees at PT X have a fairly good perception regarding management priority and commitment to safety with an average value of 3, which can be concluded in This dimension as a whole employees have a perception that is considered good. However, it still needs to be improved regarding management's tolerance for safe actions where it is known that management tolerates risk of danger when work schedules are busy with an average value of ≤2.70 which means it is in the very low category. This can be seen in the observation results that it was found that management tolerated employees who were incomplete in using PPE when the work schedule was busy. This means the importance of the role of management commitment in the workplace which can contribute greatly to creating zero accidents and building a safety culture (Michael, 2002)

Dimension 2 is the dimension of empowering safety management, in this study it is known that in general PT X employees have a fairly good perception regarding empowering safety management with an average value of 3.1. However, it still needs to be improved regarding considering suggestions from workers related to safety and risk where an average value is obtained of 2.7 which means it is in the very low category. This shows that there is still a lack of a good relationship between management and workers related to considering workers' suggestions related to safety. The need for a strategy to increase management's closeness with employees related to safety and risk, namely by holding intensive interactions with employees related to safety issues such as job information, incidents, accidents, and how to deal with safety issues that exist in PT X so that employees who acquire safety knowledge can develop the ability to work safely in the workplace and foster a positive perception of safety (Choudry, 2009)

Dimension 3, namely the dimension of fairness in safety management, in this study it is known that in general PT X employees have a fairly good perception of fairness in safety management with an average score of 3.2. However, it still needs to be improved regarding the fear of sanctions experienced by employees so that they are reluctant to report it, where the average value is 2.6, which means it is in the very low category. This shows that management does not yet have a strategy for incident and accident investigation, so incident reporting is independent. Incident investigation is a good way to involve workers in the safety process because it can be used as a way of learning about potential hazards and how to prevent these accident incidents from recurring.

Dimension 4 is the worker's dimension of safety, in this study it is known that in general PT X's employees have a good perception regarding workers' commitment to safety with an average value of 3.1. However, it still needs to be optimized regarding safety concerns for fellow workers, where an average value of ≤2.70 is obtained, which means it is in a fairly low category. The caring nature of fellow employees related to occupational safety and health is very much needed in a company. In line with what Somad (2013) said, people generally get injured and even disasters occur in the work environment because they make mistakes or deviate from the provisions and procedures set by the company (Somad, 2013).

Dimension 5, namely the dimension of worker safety priority and hazard risk intolerance, in this study it is known that in general PT X employees have a fairly low perception regarding worker safety priority and hazard risk is not tolerated with an average value of 2.9. Thus it still needs to be optimized regarding perceptions of tolerance for dangerous behavior as long as it does not cause accidents and safety concern for fellow workers where an average value is obtained ≤2.70, which means it is in a fairly low category. In Inouye's research, 2014 shows that low risk perception can lead to higher risk tolerance, which can increase risky work behavior (Inouye, 2014).

Dimension 6, namely the priority dimension of worker safety and intolerable risk of harm, in this study it is known that in general PT X employees have a fairly good perception regarding learning, communication and trust in colleagues with an average value of 3.2. Thus it still needs to be optimized related to employee perceptions who feel that there is a lack of communication discussing safety (X6.6) where an average value of 2.6 is obtained, which means it is in the very low category. In the research by Mearns 2003, it shows that the level of communication is part of the aspect that is most closely related to work accident cases. Messages that can be recommended to establish good communication between fellow employees, employees to managers or K3 management are by implementing new ideas and improving the hazard reporting phase and re-evaluating the effectiveness of the communication model that has been implemented (Mearens, 2003).

Dimension 7, namely the dimension of trust in the efficiency of implementing safety systems, in this study it is known that in general employees of PT X have a fairly good perception regarding confidence in the

efficiency of implementing safety systems with an average value of 3. Thus it still needs to be optimized regarding employee perceptions related to assessment / safety audit has no impact on safety where an average value is obtained ≤ 2.70, which means it is in the very low category. The success of the effectiveness of the safety system requires cooperation from employees. Therefore, employees should actively care about and be curious about safety assessments so they can understand how to control them. This is supported by research by Setiawan et al., 2017 which shows that workers' trust in management grows when management has commitment and competence in OSH and prioritizes safety (Setiawan, 2017).

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of research conducted on the Description of the Safety Climate Using the NOSACQ-50 Method for Employees in the Production Department at PT. X Year 2021, it can be concluded that dimension 1 of management's priority and commitment to safety is in the pretty good category with a mean value of 3. Dimension 2 of empowering safety management is in the pretty good category with a mean value of 3.1. The fairness dimension of safety management is in the fairly good category with a mean value of 3.2. Dimension 4 of workers' commitment to safety is in the good category with a mean value of 3.1. The 5th dimension of worker safety priority and intolerable hazard risk is in the fairly low category with a mean value of 2.9. Dimension 6 of learning, communication and trust in co-workers is included in the pretty good category with a mean value of 3.2. Dimension 7, confidence in the efficiency of implementing safety systems is in the pretty good category with a mean value of 3.

FURTHER STUDY

The safety climate overview of PT X has been included into quite well category, within 6 dimensional results is a “good” category, and 1 dimension result is a “bad” category. It is very recommended that the management of PT X to build safety became part of work and provide workshops or training on risk amd danger by inserting information related safety issues and engaging in discussion activities involving workers.

REFERENCES

Badan Pusat Statistik Provinsi Jawa Barat. Keadaan Angkatan Kerja di Provinsi Jawa Barat Februari 2020. Badan Pusat Statistik Provinsi Jawa Barat; 2020. xxxviii+105.

Choudry, R.M., Fang, D., Lingard, H., Measuring Safety Climate of a Construction Company. Journal of Construction Engineering and Management. 2009;135.

Det Nationale Forskningscenter for Arbejdsmiljø. Interpreting the Nordic Occupational Safety Climate Questionnaire NOSACQ-50 results [internet]. 2018. Available from: http://nfa.dk/da/Vaerktoejer/Sporgeskemaer/Safety-ClimateQuestionnaire-NOSACQ50/How-to-use-NOSACQ50/InterpretingNOSACQ50-results

Dinas Tenaga Kerja Provinsi Jawa Barat. Buletin Dinas Tenaga Kerja dan Transmigrasi Provinsi Jawa Barat. Dinas Tenaga Kerja Provinsi Jawa Barat; 2018. xxxix+309.

Group, W. B. Environmental, Health, and Safety Guidelines for Cement and Lime. Manufacturing World Bank Group. Draft For Public Consultation [internet] .2018. 1-31. Available from: https://www.ifc.org/wps/wcm/connect/52592e0e-8475-4231-ba50-aeeb432e8e3c/20180719 Draft+for+2nd+Consultation-Cement+Lime+Mnfg.pdf?MOD=AJPERES&CVID=ml8Xzc7

Inouye, J. Risk Preception: Theories, Strategies, and Next Steps. Campbell Institute Nasional Safety Council, New Zealand. 2014.

Krause TR, Seymour KJ, Sloat KCM. Long-term evaluation of a behaviorbased method for improving safety performance: a meta-analysis of 73 interrupted time-series replications. Saf Sci. 1999;32.

Mearns, K., Whitaker, S., Flin, R. Safety Climate, Safety Management Practice and Safety Performance in Offshore Environments. Safety Science [internet]. 2003;41. Available from: https://www.sciencedirect.com/science/article/pii/S0925753502000115

Meningkatkan Keselamatan dan Kesehatan Pekerja Muda. Jakarta: International Labor Organization [internet]; 2018. Available from: https://www.ilo.org/jakarta/whatwedo/publications/WCMS_627174/lang--en/index.htm

O'Toole, Michael. The Relationship Between Employees' Perceptions of Safety and Organizational Culture. Journal Safety Research. 2002;33.

Panggabean MS. Manajemen Sumber Daya Manusia. Bogor: Ghalia Indonesia; 2004.

Riduan M, Ruzikna. Hubungan Program Keselamatan dan Kesehatan Kerja (K3) dengan Produktivitas Karyawan. JOM FISIP [internet]. 2015;2. Available from: https://media.neliti.com/media/publications/32734-ID-hubungan-program-keselamatan-dan-kesehatan-kerja-k3-dengan-produktivitas-kerja-k.pdf

Setiawan CI, Nopiyanti E, Susanto AJ. Analisis Hubungan Safety Climate Dengan Safety Behavior Pada Pekerja Konstruksi Proyek Apartemen ElCentro, PT Totalindo Eka Persada, Bogor. J Kesehat Masy [Internet]. 2017;1(1):95–116. Available from: http://ejournal.urindo.ac.id/index.php/jukmas/article/view/557

Somad, Ismed. Teknik Efektif Dalam Membudayakan Keselamatan dan Kesehatan Kerja. Jakarta: Dian Rakyat; 2013.