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Original Article

Relationship between Predisposing Factors and Compliance with the Use of PPE (Personal Protective Equipment) among Workers at Steel Industry of PT X

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ABSTRACT

Predisposing factors in this paper refer to factors that facilitate compliance behavior in the use of PPE in the workplace. This study aims to determine the relationship between predisposing factors of age, years of service, attitudes and knowledge with the compliance with the use of PPE at PT X. This study applied a cross-sectional approach. The sample size was 60 workshop workers. This study was conducted from November 2022 to February 2023. The instruments were questionnaire and observation sheet. The chi-square test results showed that age (p=0.517) and years of service (p=0.530) showed no relationship with the use of PPE. Furthermore, there was a relationship between compliance with the use of PPE among workers with knowledge (p=0.016) and attitude (p=0.006). The result of multivariate analysis test showed that knowledge (p=0.035) and attitude (p=0.013) significantly affected compliance with the use of PPE. In addition, it was found that there was a relationship between knowledge and attitudes with compliance with the use of PPE. Companies need to improve the leadership style of supervisors through influencing and motivating workers. Several practices involve providing a sense of comfort, supporting workers while working or using PPE, so that workers can positively influence other workers in carrying out the company's vision and mission and using PPE to reduce accident rates.

Keywords: Predisposing factors, Personal Protective Equipment (PPE), Compliance, Steel industry

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INTRODUCTION

The steel industry is a sector that has a strategic role in efforts to establish national economic independence. Such sector has an effect on increasing the absorption of natural resources and the use of industrial tools and materials used from input, process to output of goods and services[1]. The industry's complexity of processes creates physical, chemical, biological and psychosocial hazards that can cause accidents[2]. Therefore, the application of occupational safety and health is a major requirement to protect and prevent accidents in the workplace. The International Labor Organization (ILO) in 2018 noted that around 2.78 million workers died due to work accidents and work-related diseases [3]. According to data derived from BPJS Employment in Indonesia in 2019, there were 77,295 cases of work accidents [4]. Meanwhile, there were 1,468 work accidents in 2017 and 2,329 accident cases in Central Java in 2018 [5].

The high rate of accidents emphasizes that risk control must be carried out in certain ways, such as elimination, substitution, technical control, administrative control and the use of personal protective equipment [6]. As with the use of PPE, even though the company has provided PPE, workers are still found to be not comply with the use of PPE. According to Lagata (2015), the workplace compliance level was still poor[7]. 35.6% of workers in the production department of manufacturing industry had a low level of compliance regarding the use of PPE [8].

Occupational safety health and administration defines PPE as equipment used

to minimize exposure to hazards in the workplace [9]. It is in accordance with PERMENAKERTRANS 2010 concerning PPE that PPE consists of safety helmets, safety goggles, safety shoes, face shields, ear plugs/ear muffs, safety gloves, masks, and aprons (overall).

PT X is a hydromechanical company that uses steel in its production. Based on accident data at the company in 2020, there were seven accident cases, including one medical treatment case and six first aids acts. During the production process, workers are in direct contact with marking, grinding, cutting, assembling, sandblasting and painting activities and are at risk of experiencing work accidents. The equipment used includes welding machines, grinding machines, turning machines, cutting machines, plasma cutting, sandblasting machines, overhead cranes. Certain production processes can potentially cause hazards and risks of work accidents [10].

In its study, the National Safety Council stated that unsafe actions caused 87% of workplace accidents and mechanics, and the environment 11 caused 78%. According to Notoatmodjo (2014), behavior regarding compliance with the use of PPE is motivated by 3 main factors, one of which is predisposing factors, namely personal considerations of an individual or group that influence the occurrence of a behavior which includes the level of knowledge, education, attitude, age, behavior and years of service [12,13].

Knowledge is often become one of the predisposing factors used in studies on individual behavior, such as behavior regarding the use of PPE. Higher education levels tend to lead to better knowledge. Many workers were found to have negative attitudes related to low levels of behavior regarding the use of PPE [14].

The International Labor Organization (1989) states that age and length of service are key factors that cause accidents, but it must also be remembered that age cannot be directly equated with the years of service. In addition, a study conducted in America proved that lack of work experience was the most important factor in causing workplace accidents [15]. According to Geller's (2001) safety triad theory, compliance is one of the factors in the behavioral component which is influenced by the interaction of personal factors and environment components [16,17]. According to Sari (2012) 26.3% of workers who did not use PPE were at risk of having an accident while working. This indicated that there was a relationship between compliance behavior regarding the use of PPE and accidents experienced by workers [18,19]. A similar study was conducted in 2017 regarding the relationship between predisposing factors and the behavior of using PPE among workers. It's just that several factors such as place, time, respondent characteristics, sample size and several variables were found to have no relationship.

This study was conducted to determine the relationship between predisposing factors (knowledge, attitude, age and years of service) and compliance with the use of PPE among workers at PT X.

METHOD

This study was conducted at PT X in November 2022-February 2203. This was a quantitative observational study with cross sectional design. The population involved workers in the production department of PT X as many as 113 workers. The inclusion criterion was workers in workshop. The number of samples was determined using the Slovin formula namely 10% of population, and obtained a minimum sample of 55 which was then made 60 workers. The samples were selected using simple random sampling. The dependent variable studied was compliance with the use of PPE, while the independent variables were level of knowledge, attitude, age and years of service. Ordinal scale measurement was applied for knowledge assessment (true=1 wrong=0), attitude assessment (agree=1 and disagree=0) and for compliance (complied with= 1 and did not comply with=0).

The data collection method was in the from of primary data obtained by direct interviews with workshop workers using a questionnaire instrument. Validity test was initially performed. Data obtained were further analyzed univariately and bivariately. Univariate results were displayed in the form of a frequency distribution and narrative presentation. Furthermore, bivariate analysis results were displayed in the form of a cross tabulation. Using the chi-square test based on continuity correction, bivariate analysis was applied to determine the relationship between dependent and independent variables. The contingency table is 2x2 and the expected count

is less than 5. Multivariate analysis applied logistic regression to determine the most influential relationship between variable. The variables used in this test were obtained based on the bivariate analysis test results for the p-value of ≤ α (0.025), which were then used for the multivariate analysis test.

RESULTS

From the questionnaire distributed to the respondents, the characteristics of respondents regarding age, education and years of service among workers at PT X were obtained.

Table 1. Frequency Distribution by Age and Years of Service at PT X

Faktor Predisposing	Frequency	Percentage (%)
Age		
Young (≤ 36 years)	34	56.7%
Old (> 36 years)	26	43.3%
Years of Service		
Not Long (5 years)	27	45.0 %
Long (> 5 years)	33	55.0 %

Based on Table 1, it was shown that most of the respondents were aged ≤36 years with a total of 35 respondents (56.7%), and 26 respondents (43.3%) were aged >36 years. Meanwhile, the distribution of years of service revealed that 33 respondents (55.0%) had been working for >5 years and 27 respondents (45.0%) had been working for 5 years.

Table 2. Frequency Distribution of Knowledge, Attitude, and Compliance with PPE among Workers at PT X

Variable		F	Percentage (%)
Knowledge	Poor	39	65.0%
	Good	21	35.0%
Attitude	Negative	27	45.0%
	Positive	33	55.0%
Compliance	Did not Comply with	34	56.7%
	Complied with	26	43.3%

Based on Table 2, it was shown that 21 respondents (35%) had good level of knowledge and 39 respondents (65%) had poor level of knowledge. Regarding attitude towards compliance with the use of PPE among production workers at PT X, 33 respondents (55.0%) had positive attitudes, while 27 respondents (45.0%) had negative attitude. The frequency distribution on the level of compliace with the use of PPE among production workers at PT X showed that 26 respondents (43.3%) complied with the use of PPE and 34 respondents (56.7%) did not complied with the use of PPE.

Table 3. Relationship Between Knowledge, Attitude, Age, and Years of Service with Compliance with PPE Use

Variable		Compliance with PPE Use						ρ-value	Prevalence Ratio
		Did not Comply with		Complied with		Total			
		Σ	%	Σ	%	Σ	%		
Knowledge	Poor	27	69.2%	12	30.8%	39	100%	0.016*	2.333
	Good	7	33.3%	14	66.7%	21	100%		
Attitude	Negative	21	77.8%	6	22.2%	27	100%	0.006*	2.729
	Positive	13	39.4%	20	60.6%	33	100%		
Age	Young	21	61.8%	13	38.2%	34	100%	0.517	0.764
	Old	13	50.0%	13	50.0%	26	100%		
Years of Service	Not Long	17	63.0%	10	37.0%	27	100%	0.530	0.764
	Long	17	51.5%	16	48.5%	33	100%		

**ρ-value = <0.05*

Table 3. Multivariate Analysis of Logistic Regression on the Relationship Between Knowledge, Attitude, Age, and Years of Service with Compliance with PPE Use.

Variable	B	Sig	Exp(B)	CI 95%	
				Min	Max
Knowledge	1.553	.035*	4.725	1.360	16.418
Attitude	1.552	.013*	4.720	1.407	15.831
Constant	-4.504	.001	.011		

DISCUSSION

Relationship between Knowledge and Compliance with the Use of PPE

The Chi-Square test results show a relationship between knowledge and compliance with the use of PPE with a Prevalence Ratio of 2.333. Statistically, it can be concluded that good knowledge had a 2.333 times greater chance of complying with the use of PPE properly compared to respondents with poor knowledge. Although knowledge is not always associated with behavior change, many studies showed that there was a positive relationship between knowledge and compliance behavior. Such finding is also similar to a previous study conducted by Iriani, (2019) which stated that there was a relationship between knowledge and compliance with the use of PPE[20]. A good level of knowledge will create good attitudes and behavior so that workers can comply with the use of PPE. Another study by Kurusi (2020) also found a relationship between knowledge and compliance with the use of PPE[21]. Furthermore, a study conducted by F. Ayu (2018) also revealed that there was a relationship between knowledge and compliance with the use of PPE[22,23]. In addition, a study conducted by Maharja (2018) also found that knowledge influenced attitudes and compliance in implementing OSH culture in the workplace[24]. Thus, knowledge is an important factor for the formation of one's actions or attitudes. Knowledge of PPE among workers aims to find out all events that may occur if they do not use PPE. Good knowledge will always have a good impact and vice versa, if workers do not understand the use of PPE, it will certainly have a negative impact [23].

Relationship between Attitude and Compliance with the Use of PPE

The Chi-Square test results show a significant relationship between attitude and compliance with the use of PPE with a Prevalence Ratio of 2.729. Statistically, it can be concluded that a positive attitude had a 2.729 greater chance of complying with the use of PPE compared to respondents who had a negative attitude. Attitude is a person's tendency or predisposition to accept or reject an object according to the value that is claimed to be good or bad. The better a person's attitude is formed, the better they will comply with the use of personal protective equipment. If workers' attitudes are good, they should comply more with the use of personal protective equipment [25]. A study co ducted by Devila (2022) found that there was a relationship between attitude and compliance with the use of PPE[26]. A study conducted by Akbar & H, (2020) similarly found that there was a relationship between attitude and compliance with the use of PPE[27]. A study conducted by Rahmatilah (2020) further revealed that there was a relationship between attitude and compliance with the use of PPE[28]. In theory, workers may understand attitudes related to the use of PPE, but in practice they do not always apply such compliance attitude. They may feel uncomfortable or do not move freely when carrying out their activities and think that PPE slows down their time for work, so workers often remove them if there is no supervisor at work.

Relationship between Age and Compliance with the Use of PPE

The Chi-Square test results show no relationship between age and compliance with the use of PPE with a Prevalence Ratio of 0.764. Such finding is confirmed with a study conducted by Azizah (2021) which found that there was no relationship between age and compliance with the use of PPE among workers[29]. A study conducted by Ayu (2018) further revealed that there was no relationship between age and compliance with the use of PPE[30]. Someone who is of mature age and has

worked for a long time does not guarantee that he or she can comply with the use of PPE [31]. Workers compliance in using personal protective equipment (PPE) is not parallel to the age level, either in the younger or the older age group, because over time, individuals' physical and mental development will change, depending on the type of work [32]. This is proven by similar percentage between young people and old people regarding compliance with the use of PPE. Thus, age did not have a significant relationship with compliance with the use of PPE.

Relationship between Years of Service and Compliance with the Use of PPE

After conducting an analysis using Chi-Square test, it was found that there was no relationship between years of service and compliance with the use of PPE with a Prevalence Ratio of 0.764. According to Notoatmodjo (2012), years of service is a characteristic factor that shapes behavior[33]. The longer years of service in the workplace will make workers more aware of environmental conditions and hazards in the workplace so that they will comply with the use of PPE [34]. This was confirmed by a study conducted by Andriyanto (2017) which found no relationship between years of service and compliance with the use of PPE. As workers work longer, not all of them comply with the use of PPE[35]. According a study conducted by Astuti (2019), it was found that there was no relationship between years of service and compliance with the use of PPE[36]. A similar finding was also revealed in a study conducted by Putri (2018) that there was no relationship between work experience and compliance with the use of PPE[34]. This was evidenced by the fact that new and old employees had the same percentage of compliance in complying with existing policies in the company.

Effect of Knowledge on Compliance with the use of PPE at PT X of Tegal City

Knowledge is important for every individual, especially in developing actions and behavior among workers. Good knowledge can increase compliance of workers in using PPE [37]. The study finding is in line with a study conducted by Cahyani (2020) which found that there was a relationship between knowledge and compliance with the use of PPE[38]. Similarly, a study conducted by Devianti, (2022) found that there was an effect of the level of knowledge on compliance with the use of PPE[39]. A study conducted by Gunawan & Mudayana (2016) further stated that there was a relationship between knowledge and compliance with the use of PPE[40].

Effect of Attitude on Compliance with the use of PPE at PT X of Tegal City

Attitude refers to a person's willingness to take an action. Workers' attitudes had an effect on compliance with the use of PPE in the workplace. It was indicated that the better a person's attitude, the better the actions to comply with PPE [41]. The study finding is in line with a study conducted by Annisa (2020) which revealed that there was a relationship between attitudes and compliance with the use of PPE[42]. Another study conducted by Gunawan & Mudayana, (2016) similarly found a relationship between attitude and compliance with the use of PPE ($p=0.031$)[40]. Another study conducted by Marchamah & Woro (2017) further revealed that there was a relationship between attitudes and compliance with the use of PPE[43]. A similar finsing was also revealed in a study conducted by Rahmatilah (2020) which found that there was a relationship between attitudes and compliance with the use of PPE[28].

CONCLUSIONS

The study finding showed that there was a significant relationship between knowledge and attitude factors with compliance with the use of PPE at PT X. Companies need to improve the leadership style of supervisors through influencing and motivating workers. Several practices involve providing a sense of comfort, supporting workers while working or using PPE, so that workers can positively influence other workers in carrying out the company's vision and mission and using PPE to reduce accident rates.

REFERENCE

1 Munir MM, Paskarini I. Relation between Activator Factors and Compliance Behavior of Using Personal Protective Equipment on Technician Workers at PT ARPS Surabaya. The Indonesian Journal of Occupational Safety and Health. 2021;10(2):224-32.

2 Kralam K, Taneepanichskul N. Knowledge, Attitude and Practice

towards Personal Protective Equipment Use among Steel Industry Workers in Thailand. Journal of Health Research. 2016;30(Suppl. 2):S161-5.

3 Pelga BN, Muhani N. Analisis Risiko Keselamatan dan Kesehatan Kerja pada Proses Produksi Steel Billet di PT. San Xiong Steel Indonesia Tahun 2019. Jurnal Dunia Kesmas. 2021 Apr 16;10(1):85-95. https://doi.org/10.33024/jdk.v10i1.2985

4 Aruan KM, Singgih ML. Pengendalian Risiko Kecelakaan HSSE pada Proses Pembuatan Pipa Baja. Jurnal Teknik ITS. 2021 Dec 22;10(2):B52-7.

5 Sudalma, Rosnaini. K3 di Jawa Tengah: Analisis Tren Kecelakaan Kerja Tahun 2018. Jurnal Keselamatan dan Kesehatan Kerja Indonesia (Jurnal K3 Indonesia), 2020, 1, 42-48 Available: https://www.researchgate.net/profile/Sudalma-Sudalma/publication/357749001_K3_di_Jawa_Tengah_Analisis_Tren_Kecelakaan_Kerja_Tahun_2018/links/61ddadbf4e4aff4a6434888f/K3-di-Jawa-Tengah-Analisis-Tren-Kecelakaan-Kerja-Tahun-2018.pdf.

6 Asgedom AA, Bråtveit M, Moen BE. Knowledge, attitude and practice related to chemical hazards and personal protective equipment among particleboard workers in Ethiopia: a cross-sectional study. BMC public health. 2019 Dec;19:1-0.

7 Lagata FS. *Gambaran Perilaku Penggunaan Alat Pelindung Diri(APD) pada Pekerja di Departemen Produksi PT Mauki Internasional Indonesia makasar Tahun 2015*. 2015.

8 Mola M, Herlina H. Analisis Tingkat Kepatuhan Penggunaan Alat Pelindung Diri di PT Wijaya Karya Industri dan Konstruksi Pabrik Fabrikasi Baja. Jurnal Persada Husada Indonesia. 2020;7(25):14-22. Available: http://jurnal.stikesphi.ac.id/index.php/kesehatan.

9 Sehsah R, El-Gilany AH, Ibrahim AM. Personal protective equipment (PPE) use and its relation to accidents among construction workers. La Medicina del lavoro. 2020;111(4):285.

10 Thursina RA. Identifikasi Bahaya dan Penilaian Risiko Operator Mesin Gerinda. The Indonesian Journal Of Occupational Safety and Health. 2018;7(1):30-41. doi: 10.20473/ijosh.v7i1.2018.30-41.

11 Bangun S, Indriasari I. Faktor-faktor yang Berhubungan dengan Tindakan Tidak Aman pada Pekerja di Proyek Pembangunan Apartemen Evencho Margonda. Jurnal Teknik. 2021 Feb 11;10(1). http://dx.doi.org/10.31000/jt.v10i1.4003

12 Notoatmodjo S. *Kesehatan Masyarakat: ilmu dan Seni*. Jakarta: Rineka Cipta, 2014.

13 Dewi IP, Adawiyah WR, Rujito L. Analisis Tingkat Kepatuhan Pemakaian Alat Pelindung Diri Mahasiswa Profesi Dokter Gigi Di Rumah Sakit Gigi Dan Mulut Unsoed. Jurnal Ekonomi, Bisnis, dan Akuntansi. 2020 Jan 13;21(4). Available: http://jp.feb.unsoed.ac.id/index.php/jeba/article/viewFile/1541/1550.

14 Riana M. Literature Review: Faktor-Faktor Yang Mempengaruhi Perilaku Penggunaan Alat Pelindung Diri (Apd) Pada Pekerja Industri. *Juitech*. 2021, 5(1).

15 Fairyo LS, Wahyuningsih AS. Kepatuhan pemakaian alat pelindung diri pada pekerja proyek. HIGEIA (Journal Of Public Health Research And Development). 2018 Feb 1;2(1):80-90.

16 Geller E. Scoot, *The Psychology of safety Handbook*. Lewis Publishers.

17 Zahara RA, Effendi SU, Khairani N. Kepatuhan Menggunakan Alat Pelindung Diri (APD) Ditinjau dari Pengetahuan dan Perilaku pada Petugas Instalasi Pemeliharaan Sarana. Jurnal Aisyah: Jurnal Ilmu Kesehatan. 2017;2(2):154., doi: 10.30604/jika.v2i2.60.

18 Sari CK. Hubungan Karkteristik Tenaga Kerja dengan Kecelakaan Kerja, *Skripsi*, 2012. Available: http://repository.unair.ac.id/id/eprint/22497.

19 Solekhah SA. Faktor Perilaku Kepatuhan Penggunaan Alat Pelindung Diri Pada Pekerja Di Seksi Machining Crank Shaft Dan Seksi Painting Plastik Berdasrkan Observasi Bang Zero Observation Program (B-Zop). Jurnal

Penelitian Kesehatan. 2020 Feb 12;18(2):12-5. doi: 10.35882/jpk.v18i2.4.

20 Iriani R. Hubungan Pendidikan, Pengetahuan dan Masa Kerja dengan Tingkat Kepatuhan Perawat Dalam Penggunaan APD di RS Harum Sisma Medika Tahun 2019. Jurnal Persada Husada Indonesia. 2019 Jul 22;6(22):21-7.

21 Kurusi FD, Akili RH, Punuh MI. Hubungan antara pengetahuan dan sikap dengan kepatuhan penggunaan alat pelindung diri (APD) pada petugas penyapu jalan di kecamatan Singkil dan Tuminting. KESMAS: Jurnal Kesehatan Masyarakat Universitas Sam Ratulangi. 2020;9(1).

22 Ayu F, R MN, Sunaryo M. Hubungan Tingkat Pengetahuan Dengan Kepatuhan Penggunaan Alat Pelindung Diri (APD) Pada Pekerja Mekanik Di Area Workshop PT. XYZ Kota Surabaya. MTPHJ [Internet]. 2018Aug.24 [cited 2023Sep.8];1(2):79-85. Available from: https://journal2.unusa.ac.id/index.php/MTPHJ/article/view/785.

23 Indrayani I, Sukmawati S. Gambaran Penggunaan Alat Pelindung Diri Tenaga Outsourcing Distribusi Di PT PLN (Persero) Rayon Wonomulyo Kabupaten Polewali Mandar. Jurnal Kesehatan Masyarakat. 2019;4(1):59-71.

24 Maharja R, Tualeka AR, Suwandi T. The analysis of safety culture of welders at shipyard. Indian Journal of Public Health Research & Development. 2018;9(10):62-6.

25 Miranda M, Yustina I, Theo D, Putri AR. Relationship of Knowledge and Attitude with Compliance from the Use of Personal Protective Equipment at Mitra Medika Amplas Hospital. Budapest International Research and Critics Institute-Journal (BIRCI-Journal). 2021 Dec 14;4(4).

26 Devila Y, Rahayu EP, Zaman K. Factors Related To The Compliance In The Use Of Personal Protective Equipment At Production Employees At Pt Indofood Cbp Sukses Makmur Noodle Division, Pekanbaru. Science Midwifery. 2022 Dec 30;10(5):4449-55.

27 Akbar RA. Hubungan antara pengetahuan dan sikap dengan kepatuhan penggunaan APD pada pekerja di PT. PLN (PERSERO). Binawan Student Journal. 2020 Aug 30;2(2):260-6.

28 Rahmatilah S. Pengaruh Perilaku dan Kepatuhan Perawat terhadap Penggunaan Alat Pelindung Diri dalam Pencegahan Infeksi Nosokomial di Ruang Rawat Inap Rsud Dr. R. M Djoelham Binjai Tahun 2020. Journal of Healthcare Technology and Medicine. 2020 Dec 11;6(2):1142-57.

29 Azizah DN, Pulungan RM, Utari D, Amrullah AA. Faktor-Faktor yang Berhubungan dengan Kepatuhan Menggunakan Alat Pelindung Diri (APD) pada Pekerja Proyek Pembangunan PLTGU Muara Tawar (Persero). Jurnal Ilmiah Kesehatan Masyarakat: Media Komunikasi Komunitas Kesehatan Masyarakat. 2021 Sep 7;13(3):141-50.

30 Ayu BF, Tualeka AR, Wahyudiono YD. The analysis of factors which are related to the compliance of welder workers in using workplace personal protective equipment in Pt. pal Indonesia. Indian Journal of Public Health Research & Development. 2018;9(5):47-52.

31 Rahman ZF, Mochtar FN, Ardyanto YD. Correlation of Work Period and Age with the Compliance with the Use of Ear Protection Equipment on Production Workers in anEast Java Animal Feed Industry. IJOSH [Internet]. 2021 Mar. 17 [cited 2023 Sep. 8];10(1):56-63. Available from: https://e-journal.unair.ac.id/IJOSH/article/view/15929.

32 Kalasuat J, Rantetampang AL, Ruru Y, Mallongi A. Analysis of use of protective equipment (PPE) in employees PT Conch Cement Manokwari District West Papua. Galore International Journal of Health Sciences and Research. 2019;4(1):62-71.

33 Notoatmodjo S. *Pendidikan dan Perilaku Kesehatan*. Jakarta: Rineka Cipta, 2012.

34 Putri KDS. Analisis Faktor Yang Berhubungan Dengan Kepatuhan Menggunakan Alat Pelindung Diri.

IJOSH [Internet]. 2018 Oct. 30 [cited 2023 Sep. 8];6(3):311-20. Available from: https://e-journal.unair.ac.id/IJOSH/article/view/9689

35 Andriyanto MR. Hubungan Predisposing Factor dengan Perilaku Penggunaan APD pada Pekerja Unit Produksi I PT Petrokimia Gresik. The Indonesian Journal of Occupational Safety and Health. 2017 Jan;6(1):37-47.

36 Astuti TP, Wahyuni I, Jayanti S. Hubungan karakteristik, pengetahuan, sikap dan pengawasan dengan kepatuhan pemakaian alat pelindung diri pada petugas laundry (Studi di RS. X Provinsi Lampung). Jurnal Kesehatan Masyarakat (Undip). 2019 Jul 1;7(3):39-46.

37 Mustofa M, Nursandah A, Haqi DN. Analisis Penggunaan Alat Pelindung Diri pada Pekerjaan Pembesian dan Pengecoran Kolom dan Girder di Pt. Pembangunan Perumahan (Persero) Tbk."Studi di Proyek Pembangunan Tol Pandaan Malang". AGREGAT. 2019 Nov 30;4(2).

38 Cahyani FT. Pengaruh pengetahuan dan ketersediaan APD terhadap kepatuhan pemakaian APD pekerja PT. PLN. Majalah Kesehatan Masyarakat Aceh (MaKMA). 2020 May 12;3(1).

39 Devianti IC, Rupiwardani I, Susanto BH. Faktor-Faktor yang Mempengaruhi Kepatuhan Penggunaan Alat Pelindung Diri (APD) pada Pekerja Konstruksi di PT. X". Banua: Jurnal Kesehatan Lingkungan. 2022 Dec 27;2(2):50-8.

40 Gunawan I, Mudayana AA. Hubungan Antara Pengetahuan, Sikap Dan Motivasi Dengan Perilaku Penggunaan Alat Pelindung Diri Pada Pekerja Bagian Produksi Pt. Katingan Indah Utama, Kabupaten Kotawaringin Timur, Provinsi Kalimantan Tengah. Unnes Journal of Public Health. 2016 Oct 28;5(4):336-47.

41 Widiyanto AF, Zeha HN, Rahardjo S, Suratman S. Faktor-Faktor yang berpengaruh terhadap Praktik Masyarakat dalam Pengelolaan Sampah di Desa Ketenger, Kecamatan Baturaden, Kabupaten Banyumas. Jurnal Kesehatan Lingkungan Indonesia. 2020;19(2):76-81.

42 Annisa R, Manullang HF, Simanjuntak YO. Determinan Kepatuhan Penggunaan Alat Pelindung Diri (APD) Pada Pekerja PT. X Proyek Pembangunan Tahun 2019. Jurnal Penelitian Kesmasy. 2020 Apr 30;2(2):25-39.

43 Marchamah DN, KH OW. Komitmen Kebijakan, Penerapan SMK3, Pengetahuan, dan Sikap K3 terhadap Penggunaan APD Perusahaan Jasa Bongkar Muat. Public Health Perspective Journal. 2017 Dec 14;2(3).