

DAFTAR PUSTAKA

1. Desye B, Geto AK, Berhanu L, Daba C, Berihun G. Occupational respiratory symptoms and associated factors among street sweepers in low- and middle-income countries: A systematic review and meta-analysis. PLoS One [Internet]. 2025;20(4):1–14. Available from: <https://doi.org/10.1371/journal.pone.0320237>
2. American Thoracic Society. Pulmonary ATS-DLD-78-A Form (Baseline) [Internet]. Available from: <https://share.google/E5VdhDSts6SpiOMb9>
3. International Labour Organization. Ensuring safety and health at work in a changing climate [Internet]. 2024. Available from: https://www.ilo.org/sites/default/files/2024-04/ILO_SafeDay24_Report_r10_0.pdf
4. Pakpahan E, Pakpahan E. Hubungan paparan Polusi Udara PM_{2,5} Dengan Risiko Gangguan Kesehatan Masyarakat di Wilayah Perkotaan. J Ilmu Kesehat Masy (Journal Public Heal Sci. 2025;14:254–62.
5. Macmurdo MG, Maier LA, Balmes JR, Berg E, Brigham E, Cummings KJ, et al. Occupational Exposure to Ambient Air Pollution At-Risk Worker Groups, Regulatory and Research Needs An Official American Thoracic Society Workshop Report. Ann Am Thorac Soc. 2025;22(11):1619–32.
6. World Health Organization. Ambient (outdoor) air pollution [Internet]. 2024. Available from: <https://www.who.int/news-room/fact-sheets/detail/ambient-%28outdoor%29-air-quality-and-health>
7. Fikri E, Dewi DR, Juariah L. Analisis Risiko Kesehatan Lingkungan (ARKL) Paparan PM_{2.5} dan PM₁₀ Pada Pekerja PT. Beton Elemenindo Perkasa Tahun 2024. 2025;24(1):115–22.
8. Thangavel P, Park D, Lee YC. Recent Insights into Particulate Matter (PM_{2.5})-Mediated Toxicity in Humans: An Overview. Int J Environ Res Public Health. 2022;19(12).
9. Chanthorn W, Laokiat L. Assessment of Respiratory Symptoms among Sandstone Workers Associated with Respirable Dust and Fine Particulate Matter (PM_{2.5}) Exposure. Indones J Occup Saf Heal. 2025;14(3):317–24.
10. Nasri SM, Putri FA, Sunarno S, Fauzia S, Ramdhan DH. PM_{2.5} exposure and lung function impairment among fiber-cement industry workers. J Public health Res. 2023;12(1):1–7.
11. Hemmati A, Shahraki E. A Review on the Crucial Role of Air Quality in the Workplace: Impacts on Health and Productivity. 3rd Int Conf Manag Heal Saf Environ [Internet]. 2025; Available from: <https://civilica.com/doc/2247862>
12. Lung SCC, Hien TT, Cambaliza MOL, Hlaing OMT, Oanh NTK, Latif MT, et al. Research Priorities of Applying Low-Cost PM_{2.5} Sensors in Southeast Asian Countries. Int J Environ Res Public Health. 2022;19(3).
13. Nisa Y, Fadilah K. Kajian Sanitasi di Pelabuhan Surabaya dalam Mewujudkan Pelabuhan Sehat. J Wilayah, Kota Dan Lingkung Berkelanjutan. 2023;2(1):1–12.
14. Supartini S, Dekanawati V, Handojo B, Juniarto K. Implementasi Kesehatan dan Keselamatan Kerja (K3) bagi Pekerja Lapangan di Pelabuhan New Priok

- Container Terminal 1. *Maj Ilm Bahari Jogja*. 2021;19(2):43–63.
15. World Health Organization. WHO Global Air Quality Guidelines [Internet]. World Health Organization. 2021. Available from: <https://www.who.int/publications/i/item/9789240034228>
 16. Sangkeun S, Zangho S, Minsuk B, Seongbin C, Soohwan M, Heonsook K, et al. Effects of natural and anthropogenic emissions on the composition and toxicity of aerosols in the marine atmosphere. *Sci Total Environment* [Internet]. 2022;806. Available from: <https://www.sciencedirect.com/science/article/abs/pii/S004896972106006X>
 17. Kurniawan D, Muzaroddin I, Azis M, Studi P, Kelistrikan S, Malahayati PP, et al. Peluang dan Tantangan Penguatan Peran Pelabuhan Aceh Dalam Jaringan Logistik Lokal dan Nasional. *J Marit Malahayati*. 2024;5(1):161–6.
 18. Khaldun AI. PELAKSANAAN BONGKAR MUAT PETI KEMAS DAN WAKTU PENYELESAIAN (TURN ROUND TIME). :297–302.
 19. Yusrizal, Sirlyana, Wirotto N. Profil Polusi di Zona Pelabuhan: Kebisingan, Udara, dan Kualitas Air Sebagai Indikator Lingkungan. *Berk Perikan Terubuk*. 2025;53(2).
 20. Safitri BP, Lusno FMD. Literature Review : Dampak Paparan Pm2.5 Terhadap Gangguan Pernapasan Pekerja yang Berisiko Tinggi. *J Kesehat Tambusai*. 2025;6(2):6371–82.
 21. Paul A, Kokkola T, Fang Z, Ihalainen M, Czech H, Etzien U, et al. The impact of photochemical aging on secondary aerosol formation from a marine engine. *npj Clim Atmos Sci* [Internet]. 2025;1–6. Available from: <http://dx.doi.org/10.1038/s41612-025-00985-2>
 22. Qijun Z, Lin W, Zhiwen Y, Chao Z, Xiang L, Kaishan Z, et al. Characteristics of gaseous and particulate pollutants exhaust from logistics transportation vehicle on real-world conditions. *Transp Res Part D Transp Environ* [Internet]. 2016;43:40–8. Available from: <https://www.sciencedirect.com/science/article/abs/pii/S1361920915001297>
 23. Riski M, Haryanto B. Hubungan Paparan Pm2.5 Terhadap Penyakit Paru Obstruktif Kronik (PPOK) Pada Pekerja Di Pintu Gerbang Pelabuhan Tanjung Priok Tahun 2018. *J Nas Kesehat Lingkung Glob*. 2020;1(3).
 24. Tampubolon AW, Tampubolon AW, Ramdhan DH, Keselamatan D, Masyarakat FK. Hubungan Konsentrasi PM 2,5 dengan Keluhan Gangguan Pernapasan pada Pekerja Uji Mekanis UP PKB Pulo Gadung. *Natl J Occup Heal Saf*. 2025;5(2).
 25. Peraturan Pemerintah Nomor 22 Tahun 2021 Tentang Penyelenggaraan Perlindungan dan Pengelolaan Lingkungan Hidup [Internet]. 22 2021. Available from: <https://peraturan.bpk.go.id/Details/161852/pp-no-22-tahun-2021>
 26. PT Pelindo Multi Terminal. Dukung Pergerakan Industri, Pelindo Perkuat Layanan Curah Cair [Internet]. 2025. Available from: <https://pelindomultiterminal.com/news/dukung-pergerakan-industri-pelindo-perkuat-layanan-curah-cair>
 27. UNIS. Teluk Bayur, Indonesia [Internet]. Available from: <https://www.unisco.com/international-ports/teluk-bayur-indonesia>
 28. PTP Terminal Nonpetikemas. PTP Nonpetikemas Teluk Bayur Wujudkan Pelabuhan Ramah Lingkungan. 2024; Available from: <https://ptp.co.id/ptp-nonpetikemas-teluk-bayur-wujudkan-pelabuhan-ramah-lingkungan>
 29. Ulifin RD, Syamila AI, Kinanthi CA, Studi P, Masyarakat K, Kesehatan F, et

- al. Analisis Risiko Kesehatan dan Keselamatan Kerja (K3) pada Aktivitas Bongkar Muat Curah Kering Analysis of Occupational Safety and Health (OSH) Risks on Loading and. 2024;9:25–35.
30. Kurniasih E, Daris H. Gangguan Sistem Pernafasan. DI Yogyakarta: Penerbit Samudra Biru; 2017.
31. Ridwan M. Gangguan Pernapasan atau Penyakit Pada Sistem Pernapasan. Penerbit Hikam Pustaka; 2021.
32. Maria N. Sistem Anatomi Tubuh Manusia: PERNAPASAN. DI Yogyakarta: Sentra Edukasi Media; 2025.
33. Musalli AM, Alshehri WA, Abdulrahman KM, Alfawzan MAMA, Defullah AJ, Almalki DADA, et al. A Review of Respiratory System Diseases: Causes, Symptoms, and Treatments. *Migr Lett*. 2022;19(S8):103–13.
34. Niu S, Wang S, Xu X, Yu L. Is The Symptom of Cough in Chronic Obstructive Pulmonary Disease Important? *COPD J Chronic Obstr Pulm Dis*. 2021;18(1):123–8.
35. Yang H, Fang S, Yang Y, Chen G, Zha S, Miao C, et al. Association of respiratory symptom profiles with future exacerbations and lung function decline in mild-to-moderate COPD. *BMJ Open Respir Res*. 2025;12(1):1–10.
36. Henry Gong J. Clinical Methods: The History, Physical, and Laboratory Examinations [Internet]. Boston: Butterworths; 1990. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK358/>
37. Suha F, Modi P, Sharma S. Dyspnea [Internet]. Treasure Island: StatPearls Publishing; 2025. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK499965/>
38. Ambarwati N. Mengenal Sistem Pernapasan Manusia. Surakarta: Borobudur Inspira Nusantara; 2017.
39. Chabibah N. Hubungan Kadar Debu Kayu dan Lingkungan Kerja Fisik Dengan Keluhan Pernapasan Pada Tenaga Kerja di Bagian Produksi PT. X. Universitas Airlangga; 2017.
40. Santoso I, Juanda, Dahlan A. Pengawasan Kualitas Udara Dalam Gedung [Internet]. Banjarbaru: Tahta Media Grup; 2022. Available from: <https://share.google/zyUB8jg8l4C5vVf8P>
41. Arba S. Konsentrasi Respirable Debu Particulate Matter (PM2.5) dan Gangguan Kesehatan Pada Masyarakat di Pemukiman Sekitar PLTU. *Promot Kesehat Masy*. 2019;9(Vol. 9 No. 2: DESEMBER 2019):178–84.
42. World Health Organization. Air pollution: concentrations of fine particulate matter (PM2.5), SDG 11.6.2 [Internet]. Available from: <https://www.who.int/data/gho/indicator-metadata-registry/imr-details/4674>
43. US EPA. Particulate Matter (PM) Basics [Internet]. 2025. Available from: <https://www.epa.gov/pm-pollution/particulate-matter-pm-basics>
44. Indonesia Re. Particulate Matter (PM) 2.5 [Internet]. 2023. Available from: <https://www.indonesiare.co.id/id/article/particulate-matter-pm-25>
45. International Labour Office. Occupational Exposure To Airborne Substances Harmful To Health [Internet]. 1980. Available from: <https://www.ilo.org/media/270716/download>
46. Quintero Santofimio V, Amaral AFS, Feary J. Occupational exposures in low- and middle-income countries: A scoping review. *PLOS Glob Public Heal* [Internet]. 2024;4(11):1–27. Available from: <http://dx.doi.org/10.1371/journal.pgph.0003888>
47. Kurniawidjaja M, Lestari F, Tejamaya M, Ramdhan D. Konsep Dasar

- Toksikologi Industri [Internet]. Fakultas Kesehatan Masyarakat Universitas Indonesia; 2021. Available from: https://fkm.ui.ac.id/wp-content/uploads/2024/08/Buku_Toksikologi_Industri.pdf
48. Wulan S, Dirhan D, Syavani D. Kualitas Udara Kota Bengkulu Dalam Bayang-Bayang Pm2,5: Analisis Data Dan Risiko Kesehatan. *J Public Heal Sci*. 2025;2(2):297–306.
 49. Yu G, Zhang Y, Wang Q, Han Z, Jiang S, Yang F, et al. Changes in the impacts of ship emissions on PM2.5 and its components in China under the staged fuel oil policies. *Atmos Chem Phys*. 2025;9497–518.
 50. Bie S, Yang L, Zhang Y, Huang Q, Li J, Zhao T, et al. Source appointment of PM2.5 in Qingdao Port, East of China. *Sci Total Env*. 2021;
 51. PT Pelindo Multi Terminal. Terminal Curah Kering [Internet]. Available from: <https://pelindomultiterminal.co.id/services/terminal-curah-kering>
 52. Aufa AF, Dahda SS, Gresik UM. Analisis Risiko Proses Bongkar Muat Curah Kering Dengan Menggunakan Metode FMEA (Failure Mode and Effect Analysis) di PT. XYZ. *J Inf Technol Comput Sci*. 2023;6:592–8.
 53. Boyke C. Perencanaan Pelabuhan dan Terminal. Surabaya: ITS Press; 2019.
 54. Ultrabulk. Dry Bulk Cargo [Internet]. 2026. Available from: <https://ultrabulk.com/cargoes/>
 55. Sucofindo. 3 Kegunaan Mineral Dari Hasil Pertambangan [Internet]. 2024. Available from: <https://www.sucofindo.co.id/artikel-1/kegunaan-mineral-dari-hasil-pertambangan/>
 56. PTP Terminal Nonpetikemas. Laporan Tahunan PT Pelabuhan Tanjung Priok 2024 [Internet]. 2024. Available from: <https://ptp.co.id/layanan-perusahaan/>
 57. Caesar DL, Sholikhah F, Mubaroq MH. Analisis Potensi dan Penilaian Risiko Bahaya Lingkungan Kerja di Perusahaan Furniture Jepara. *Environ Occup Heal Saf J*. 2023;3(2):103–14.
 58. E. W MO. Comparative Analysis of Environmental and Occupational Health Hazards among Seaport Workers in Developing Countries: A Systematic Review. *Asian J Med Princ Clin Pract*. 2025;8(2):1054–68.
 59. Bakar A, Agusthin H, Rakka S. Pelaksanaan Bongkar Muat Yang Melibatkan TKBM Di Pelabuhan Bitung. *KALAOS Kalao's Marit J*. 2020;1(2):1–18.
 60. Miftahul Husna Hasibuan, Tunggul Sihombing. Efektivitas Pelayanan Koperasi Tenaga Kerja Bongkar Muat (TKBM) Di Pelabuhan Teluk Nibung Kota Tanjung Balai. *J Niara*. 2023;16(2):268–78.
 61. Fedriani G, Winanda D. Sistem Kerja Buruh Bongkar Muat Oleh Koperasi Tenaga Kerja Bongkar Muat Di Pelabuhan Boom Baru Palembang. *Maj Ilm Manaj*. 2020;9(1):11–21.
 62. Undang-Undang Nomor 1 Tahun 1970 tentang Keselamatan Kerja [Internet]. 1 1970. Available from: <https://peraturan.bpk.go.id/Details/47614/uu-no-1-tahun-1970>
 63. Peraturan Pemerintah No. 50 Tahun 2012 tentang Sistem Manajemen Keselamatan dan Kesehatan Kerja (SMK3) [Internet]. 50 2012. Available from: <https://peraturan.bpk.go.id/Details/5263/pp-no-50-tahun-2012>
 64. Peraturan Menteri Ketenagakerjaan No. 33 Tahun 2016 tentang Tata Cara Pengawasan Ketenagakerjaan [Internet]. 33 2016. Available from: <https://peraturan.bpk.go.id/Details/145058/permenaker-no-33-tahun-2016>
 65. Sahri M, Arini SY, Jannah F, Amin M. Occupational Exposure Assessment of Fine Particulate Matter (PM2.5) and Respirable Crystalline Silica in the Ceramic Industry of Indonesia. *Atmosphere (Basel)*. 2025;16(10):1–19.

66. Adam Ayub Z, Jalaludin J, Nizam Mohd Isa K, Mohd Razif Noraini N. Evaluation of In-Vehicle Pollutants Exposure and Respiratory Symptoms among Bus Drivers in Kota Bahru, Malaysia. *IOP Conf Ser Earth Environ Sci*. 2022;1013(1).
67. Ruan Z, Li D, Cong X, Yuan S, Fan Y, Xu B, et al. The relationship between respiratory symptoms and frailty: findings from observational and Mendelian randomization analyses. *Aging Clin Exp Res*. 2025;37(1).
68. Hasan H, Arusita R. Perubahan Fungsi Paru Pada Usia Tua. *J Respirasi*. 2017;3(2):52–7.
69. Zillmer LR, Gazzotti MR, Nascimento OA, Montealegre F, Fish J, Jardim JR. Gender differences in the perception of asthma and respiratory symptoms in a population sample of asthma patients in four Brazilian cities. *J Bras Pneumol*. 2014;40(6):591–8.
70. Panjaitan D, Ashar T, Nurmaini. Hubungan Lama Kerja Dengan Keluhan Gangguan Pernapasan Pada Pmulung di TPA Sei Giling Kota Tebing Tinggi. *J Kesmas Gizi*. 2020;2(2):151–5.
71. Chung C, Park SY, Huh JY, Kim NH, Shon CH, Oh EY, et al. Fine particulate matter aggravates smoking induced lung injury via NLRP3/caspase-1 pathway in COPD. *J Inflamm (United Kingdom)*. 2024;21(1):1–13.
72. Nurrizqi M, Wardani H, Gayatri R. Hubungan riwayat penyakit, APD, pendidikan, dan umur dengan keluhan ISPA pada pekerja di kawasan industri mebel Kelurahan Bukir Kecamatan Gadingrejo Kota Pasuruan. *Sport Sciens Heal*. 2019;1(1):39–50.
73. Tran HM, Lai CH, Chen WL, Wang CC, Liang CW, Chien CY, et al. Effects of occupational exposure to metal fume PM_{2.5} on lung function and biomarkers among shipyard workers: a 3-year prospective cohort study. *Int Arch Occup Environ Health* [Internet]. 2024;97(4):401–12. Available from: <https://doi.org/10.1007/s00420-024-02055-1>
74. Fuqoha I, Suwondo A, Jayanti S. Hubungan Paparan Debu Kayu Dengan Kejadian Infeksi Saluran Pernapasan Akut (ISPA) Pada Pekerja Mebel di PT. X Jepara. *J Kesehat Masy*. 2017;5(1).
75. Nugroho PA, Setiani O, Hanani Y. Hubungan Paparan Debu PM₁₀ dan PM_{2.5} dengan Gangguan Pernapasan Pada Pekerja Penambang Batu Kapur Kabupaten Kebumen. *J Penelit Pendidik IPA*. 2024;10(12):10204–14.
76. Rahmaningsih G, Haryanto B. Hubungan Paparan PM_{2.5} Terhadap Gangguan Fungsi Paru pada Orang Dewasa di Kecamatan Ciwandan, Kota Cilegon Tahun 2022. 2022;7(6).
77. Amalia N, Novianus C. Faktor-Faktor Yang Mempengaruhi Keluhan Saluran Pernapasan Pada Pekerja di PT. X Plant Parung Bogor. *J Fisioter dan Kesehat Indones*. 2022;2(1):32–42.
78. Rahmadini A, Haryanto B. Dampak Paparan Particulate Matter 2,5 (PM_{2.5}) Terhadap Gejala Penyakit Paru Obstruktif (PPOK) Kronis Eksaserbasi Akut Pada Pekerja di Pelabuhan Tanjung Priok, 2018. *J Nas Kesehat Lingkung Glob*. 2020;1(1):17–26.
79. Irwan. *Epidemiologi Penyakit Menular*. Yogyakarta: Absolute Media; 2017.
80. Amalia S. Analisis Risiko Kesehatan Lingkungan Paparan Particulate Matter 2,5 Terhadap Tenaga Kerja Bongkar Muat di PT Pelindo Teluk Bayur Padang. Universitas Andalas; 2025.
81. Umayyah S. The Concept of The Epidemiological Triangle in The Workplace. *Oshada J*. 2024;1:20–7.

82. Wang X, Cheng Z. Cross-Sectional Studies: Strengths, Weaknesses, and Recommendations. *Chest* [Internet]. 2020;158(1):S65–71. Available from: <https://doi.org/10.1016/j.chest.2020.03.012>
83. Sugiyono. *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Bandung: Penerbit Alfabeta; 2019.
84. Kumari P, Poudel L, Chaudhary L, Choulagai BP. Prevalence and associated factors of respiratory symptoms and illnesses among brick kiln workers in Nepal —A cross-sectional study. *Environ Occup Heal Pract*. 2024;6(1):1–9.
85. Nur Attin Rifa, Suswondo Ari JS. Hubungan Paparan Debu Pm 2.5 Terhadap Gangguan Fungsi Paru Pada Pengemudi Bus Rapid Transit(Brt) Semarang. *J Kesehat Masy* [Internet]. 2019;7(3):2356–3346. Available from: <http://ejournal3.undip.ac.id/index.php/jkm>
86. Sugiyono. *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Bandung: Alfabeta; 2019.
87. Abbasi IN, Ahsan A, Nafees AA. Correlation of respiratory symptoms and spirometric lung patterns in a rural community setting , Sindh , Pakistan : a cross sectional survey. *BMC Pulm Med*. 2012;(12):81.
88. Shi J, Chen F, Cai Y, Fan S, Cai J, Chen R, et al. Validation of a light-scattering PM2.5 sensor monitor based on the long-term gravimetric measurements in field tests. *PLoS One*. 2017;12(11):1–13.
89. Notoatmodjo S. *Metodologi Penelitian Kesehatan*. Jakarta: Rineka Cipta; 2010.
90. Susanti W. *Analisis Risiko Paparan Debu Semen Terhadap Kesehatan Pernapasan Pekerja di Cement Grinding and Packing PT. X*. Universitas Sriwijaya; 2021.
91. Widodo S, Ladyani F, Asrianto LO, Rusdi, Khairunnisa, Lestari S. *Buku Ajar Metode Penelitian*. Pangkalpinang; 2023.
92. Urwatul Wustqa D, Listyani E, Subekti R, Kusumawati R, Susanti M. Analisis Data Multivariat Dengan Program R Multivariate Data Analysis Using R Program. *J. Pengabdian Masyarakat MIPA dan Pendidikan MIPA*, Vol. 2(2), Hal 83-86. 2018;2(2):83–6. Available from: <http://journal.uny.ac.id/index.php/jpmmp>
93. Das S, Goldin J, Alhajjaj M. *Cough: Evaluation and Management* [Internet]. Treasure Island: StatPearls Publishing; 2026. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK493221/>
94. Global Initiative for Chronic Obstructive Lung Disease. *Global Strategy for Prevention, Diagnosis and Management of COPD* [Internet]. 2025. Available from: <https://goldcopd.org/2025-gold-report/>
95. Cholianawati N, Sinatra T, Nugroho GA, Permadi DA, Indrawati A, Halimurrahman, et al. Diurnal and Daily Variations of PM2.5 and its Multiple-Wavelet Coherence with Meteorological Variables in Indonesia. *Aerosol Air Qual Res*. 2024;24(3):1–18.
96. Zhang Y, Zhou R, Hu D, Chen J, Xu L. Modelling driving factors of PM2.5 concentrations in port cities of the Yangtze River Delta. *Mar Pollut Bull* [Internet]. 2022; Available from: <https://www.sciencedirect.com/science/article/abs/pii/S0025326X2200813X?>
97. Nguyen G, La L, Hoang-Cong H, Le A. An exploration of meteorological effects on PM2.5 air quality in several provinces and cities in Vietnam. *J Environ Sci* [Internet]. 2024;145:139–51. Available from: <https://www.sciencedirect.com/science/article/abs/pii/S1001074223003200>
98. Krisdayanti LA, Irfandi A, Azteria V, Handayani R, Ayu IM. Hubungan Antara

- Status Merokok dan Penggunaan Masker Terhadap Keluhan ISPA pada Tenaga Kerja Bongkar Muat di Pelabuhan Tanjung Priok Tahun 2024. *Gudang J Ilmu Kesehat.* 2024;2:309–12.
99. Pramono B, Saputra A, Syarifuddin, Syatiroh. Hubungan Kadar Debu Total , Karakteristik Pekerja, Dan Perilaku Individu Terhadap Keluhan Subjektif Gangguan Pernapasan Pada Tenaga Kerja Bongkar Muat (TKBM) Di Pelabuhan Marunda , Jakarta Utara Tahun 2023. *J Multidisiplin Ilmu.* 2023;2(05):1184–99.
 100. World Health Organization. Tobacco and nicotine [Internet]. 2026. Available from: <https://www.who.int/news-room/fact-sheets/detail/tobacco>
 101. World Health Organization. Guidance on air pollution and health [Internet]. 2024. Available from: <https://www.who.int/tools/compendium-on-health-and-environment/air-pollution-and-health>
 102. Juleha J, Wambrauw A, Irjayanti A. Faktor Yang Berhubungan Dengan Musculoskeletal Disorders Pada Tenaga Kerja Bongkar Muat Di Pelabuhan Jayapura. *J Kesehat Lingkung Indones.* 2023;22(1):84–91.
 103. Suma'mur. Higiene Perusahaan dan Kesehatan Kerja (HIPERKES). Jakarta: Sagung Seto; 2014.
 104. Tarwaka. Keselamatan dan Kesehatan Kerja: Manajemen dan Implementasi K3 di Tempat Kerja. Surakarta: Harapan Press; 2015.
 105. Undang-Undang Nomor 13 Tahun 2003 Tentang Ketenagakerjaan [Internet]. 13 2003. Available from: <https://peraturan.bpk.go.id/details/43013>
 106. Rokot A, Assah V, Pandean M, Kabuhung A, Bongakaraeng B. Usia Dan Lama Kerja Beresiko Kelelahan Serta Kecelakaan Pada Tenaga Kerja Bongkar Muat (Tkbm) Di Pelabuhan Bitung. *J Impresi Indones.* 2023;2(11):1075–84.
 107. Peraturan Menteri Ketenagakerjaan Nomor 8 Tahun 2010 tentang Alat Pelindung Diri [Internet]. 8 2010. Available from: <https://jdih.kemnaker.go.id/peraturan/detail/158/peraturan-menteri-nomor-8-tahun-2010>
 108. National Institute for Occupational Safety and Health. Respirators and Mask Types and Performance [Internet]. 2025. Available from: <https://www.cdc.gov/niosh/ppe/php/community-respirators-masks/types-of-respirators-and-masks.html>
 109. Skloot G, Goldman M, Fischler D, Goldman C, Schechter C, Levin S, et al. Respiratory Symptoms and Physiologic Assessment of Ironworkers at the World Trade Center Disaster Site. *CHEST J* [Internet]. 2004;125(4):1248–55. Available from: [https://journal.chestnet.org/article/S0012-3692\(15\)32082-1/abstract](https://journal.chestnet.org/article/S0012-3692(15)32082-1/abstract)
 110. Nurma Latifah A, Septi Adwitiya N, Pratama Yuniar T, Yaspisa Lie A, Haifa Aminudin H, Studi Kesehatan Masyarakat P, et al. Hubungan Penggunaan APD dan Lama Kerja dengan Keluhan Pernapasan pada Pekerja Pabrik Hanger di Kersanagara Kota Tasikmalaya. *J Kesehat Masy Indones* [Internet]. 2026;3(3):91–7. Available from: <https://jurnalistiqomah.org/index.php/jkmi/article/view/7447>
 111. Putri A, Lestari H, Karimuna S. Faktor Yang Berhubungan Dengan Gangguan Pernapasan Pada Pekerja Yang Terpapar Debu di PT. Antam Tbk. UBPN Kolaka. *J Kesehat dan Keselam Kerja Univ Halu Oleo.* 2026;6(4):446–57.
 112. Susanti W. Hubungan Paparan PM2.5 Dan Karakteristik Responden Dengan Kejadian Gangguan Fungsi Paru Pada Pekerja Batubata Merah di Kecamatan Sukarami Kota Palembang [Internet]. Universitas Sriwijaya; 2025. Available

from:

https://repository.unsri.ac.id/173134/4/RAMA_13251_10031282126038_0028067806_01_front_ref.pdf

113. Hosmer D, Lemeshow S, Sturdivant R. Applied Logistic Regression. United States of America: Wiley; 2013.
114. Ayano B, Mekonen S, Dadi D. Assessment of particulate matter exposure levels and associated respiratory symptoms among oil seed processing factories workers. Nat Sci Reports. 2026;1–16.

