

Revitalizing occupational health efforts to support the occupational safety and health of informal palm oil plantation workers: Scoping review

Iksaruddin^{*}, Onny Setiani¹, Sutopo Patria Jati¹, Yuliani Setyaningsih¹

¹ Doctoral Program in Public Health, Faculty of Public Health, Universitas Diponegoro, Semarang, Indonesia

*Corresponding Authors: iksanbflamboyan@gmail.com

Abstract

Background: Informal workers in the palm oil plantation sector face high risks of accidents and health hazards, but are often not covered by formal occupational health services. Occupational Health Posts are an initiative to reach them, but their implementation has not been optimal. Revitalizing Occupational Health Posts is important to strengthen inclusive and sustainable occupational safety and health services. **Objective:** This study aims to review the role of revitalizing Occupational Health Posts in supporting the safety and health of informal workers in palm oil plantations. **Methods:** This study used a scoping review approach based on the Arksey and O'Malley framework with PRISMA-ScR guidance. Literature searches were conducted through the Google Scholar database using keywords such as "Occupational Health Posts," "informal workers," "palm oil plantations," and "Occupational Safety and Health." Articles that met the inclusion and exclusion criteria were analyzed thematically. **Results:** Of the seven selected articles, most showed that the existence of Occupational Health Posts positively contributed to raising workers' awareness of occupational safety and health, providing promotive and preventive services, and bridging access to health services. However, challenges remain in terms of limited resources, cross-sectoral involvement, and program monitoring and evaluation. **Conclusion:** Both qualitative and quantitative studies highlight the need to revitalize Occupational Health Posts through a more participatory and locally needs-based approach. Such revitalization has great potential to support occupational safety and health protection for informal workers in palm oil plantations.

Keywords: Evitalization; workers; occupational health post

Cite This Article

Iksaruddin, Setiani, O., Jati, S. P., & Setyaningsih, Y. (2025). Revitalizing occupational health efforts to support the occupational safety and health of informal palm oil plantation workers: Scoping review. *Proceedings Academic Universitas Jambi*, 1(2).608-620.

Editor

I Made Dwi Mertha Adnyana, M.Ked.Trop.

Article info

Received: September 29, 2025. Revised: October 05, 2025. Accepted: November 09, 2025



INTRODUCTION

Oil palm plantations are one of the most important economic sectors in Indonesia, involving many informal workers. Workers in this sector face various occupational safety and health (OHS) risks, ranging from physical hazards such as being pricked by thorns, crushed by fronds, to biological hazards due to animal bites, exposure to chemicals such as pesticides, and ergonomic risks due to heavy workloads and repetitive movements[1]. Challenging working conditions are often exacerbated by workers' lack of knowledge and awareness of potential hazards in their work environment. This increases the level of vulnerability to occupational accidents and the onset of occupational diseases[2].

Data from the Manpower Social Security Agency recorded that from 2019 to June 2023, there were 52,766 cases of work accidents in oil palm plantations in Indonesia. In the January to June 2023 period alone, there were 7,891 cases of work accidents in this sector. Most of these work accidents affected the legs (24.83%) and eyes (23.25%) of workers. The risk of work accidents includes falling, being hit by fruit or fronds, injuries from work tools, and accidents caused by palm oil processing machinery[3]. The most common occupational diseases experienced by oil palm plantation workers are musculoskeletal disorders (MSDs), which account for about 40% of all occupational diseases in this sector. The main causes are heavy workloads, repetitive physical activities, and non-ergonomic work postures. In addition, workers are also at risk of respiratory problems due to exposure to pesticides, skin irritation, and diseases caused by bites or stings of venomous animals in the plantation environment[1,4].

Informal workers in the palm oil sector face complex occupational safety and health (OSH) challenges and often do not receive adequate protection. This issue is particularly critical given the large number of informal workers in the palm oil industry, especially in major producing countries such as Indonesia and Malaysia[5]. The main obstacles to implementing OSH include a lack of management commitment to safety, limited resources, inadequate training, and a weak safety culture in the workplace. In addition, poor communication between management and workers, language and cultural differences, and tight project schedules also exacerbate the risk of accidents and occupational diseases. Unsafe workplace conditions, such as hazardous physical conditions and inadequate use of personal protective equipment (PPE), are also major causes of accidents. Ineffective regulations and enforcement, as well as low awareness of the importance of OSH standards, further contribute to significant challenges[6,7].

Informal workers in oil palm plantations generally do not have access to adequate occupational health services. Data shows that only around 26% of informal sector workers have been covered by occupational health services, while the rest still do not receive optimal protection. In fact, with the large number of informal workers and their vital role in the economy, improving access to occupational health services is an urgent need to prevent and reduce the incidence of occupational diseases and accidents in this sector. One of the efforts that the government has developed to answer this challenge is through the establishment and revitalization of the Occupational Health Effort Post [8]. The post Occupational Health Efforts is a community-based occupational health service designed to provide promotive, preventive, and first aid services for accidents and diseases for informal workers[9,10]. Through the Occupational Health Post, workers are expected to receive education on occupational hazards, Occupational Safety and Health training, and access to basic medical treatment, thereby increasing OSH awareness and culture in their work environment[11–15].

Revitalizing the Occupational Health Effort Post is very important in supporting the occupational safety and health of informal workers in oil palm plantations. Optimizing the role of the Occupational Health Post not only improves workers' knowledge and behavior in applying OSH principles, but also strengthens collaboration between the government, health workers, and the worker community [16]. With a participatory and integrated approach, the revitalization of the Pos Upaya Kesehatan Kerja is expected to create a safer, healthier, and more productive working environment for informal workers in the oil palm plantation sector.

The purpose of this scoping review is to identify, analyze, and summarize the role of the revitalization of the Occupational Health Post (*Unit Kesehatan Kerja*) in supporting occupational safety and health for informal workers in oil palm plantations. By reviewing various related literature and studies, this research aims to provide a comprehensive overview of the implementation and effectiveness of Occupational Health Units in improving working conditions and protection for informal workers in the oil palm plantation sector, as well as identifying challenges and opportunities that exist in their implementation. The findings of this review are expected to provide a basis for the development of more effective policies and programs to improve occupational safety and health in the sector.

METHODS

Study design and setting

This study employed a scoping review design to systematically map and analyze the existing literature on the role of revitalizing Occupational Health Effort Posts in supporting occupational safety and health among informal workers in oil palm plantations. The review was conducted within the framework proposed by Arksey and O'Malley, refined by Levac et al., and reported in line with the PRISMA-ScR guidelines. The study setting was not limited to a particular geographic area but encompassed national and international contexts relevant to occupational health services for informal workers in oil palm plantations.

Population, samples and sampling

The population of interest comprised informal workers in the oil palm plantation sector and the occupational health initiatives that directly target them. The sampling unit was published articles addressing Occupational Health Effort Posts and their role in occupational health and safety. A purposive sampling strategy was applied by selecting articles that met predefined eligibility criteria, ensuring relevance to the research question and objectives.

Instruments and criteria

The main instrument for data collection was a structured literature matrix developed for the scoping review process. Inclusion criteria consisted of peer-reviewed articles published in English or Indonesian within the last 10–15 years, focusing on Occupational Health Effort Posts, informal workers, oil palm plantations, and occupational safety and health. Exclusion criteria included studies not focusing on informal workers, those without full-text access, or non-peer-reviewed publications.

Procedure and data collection

The literature search was conducted systematically through electronic databases including PubMed, Google Scholar, and ScienceDirect. Keywords such as “Occupational Health Post,” “informal workers,” “oil palm plantations,” and

“Occupational Safety and Health” were used in various combinations. The selection process followed the PRISMA flow diagram, starting from identification and screening, followed by eligibility assessment, and concluding with inclusion. Data extraction was performed using a standardized form, recording study characteristics, research design, participants, interventions, key findings, and conclusions.

Data analysis

Data were analyzed descriptively using thematic analysis to identify recurring themes and patterns across the selected studies. The findings were organized into thematic categories reflecting the role, benefits, and challenges of revitalizing Occupational Health Effort Posts. Quantitative data, when available, were presented in summary tables, while qualitative findings were synthesized narratively to provide a comprehensive understanding of the evidence.

Ethical considerations

As this study was a scoping review, it did not involve direct participation of human subjects and therefore did not require formal ethical clearance. However, ethical standards in conducting literature reviews were upheld by ensuring proper citation, avoiding plagiarism, and objectively presenting the evidence. All data sources were drawn from publicly available and credible scientific publications.

RESULTS

Study selections

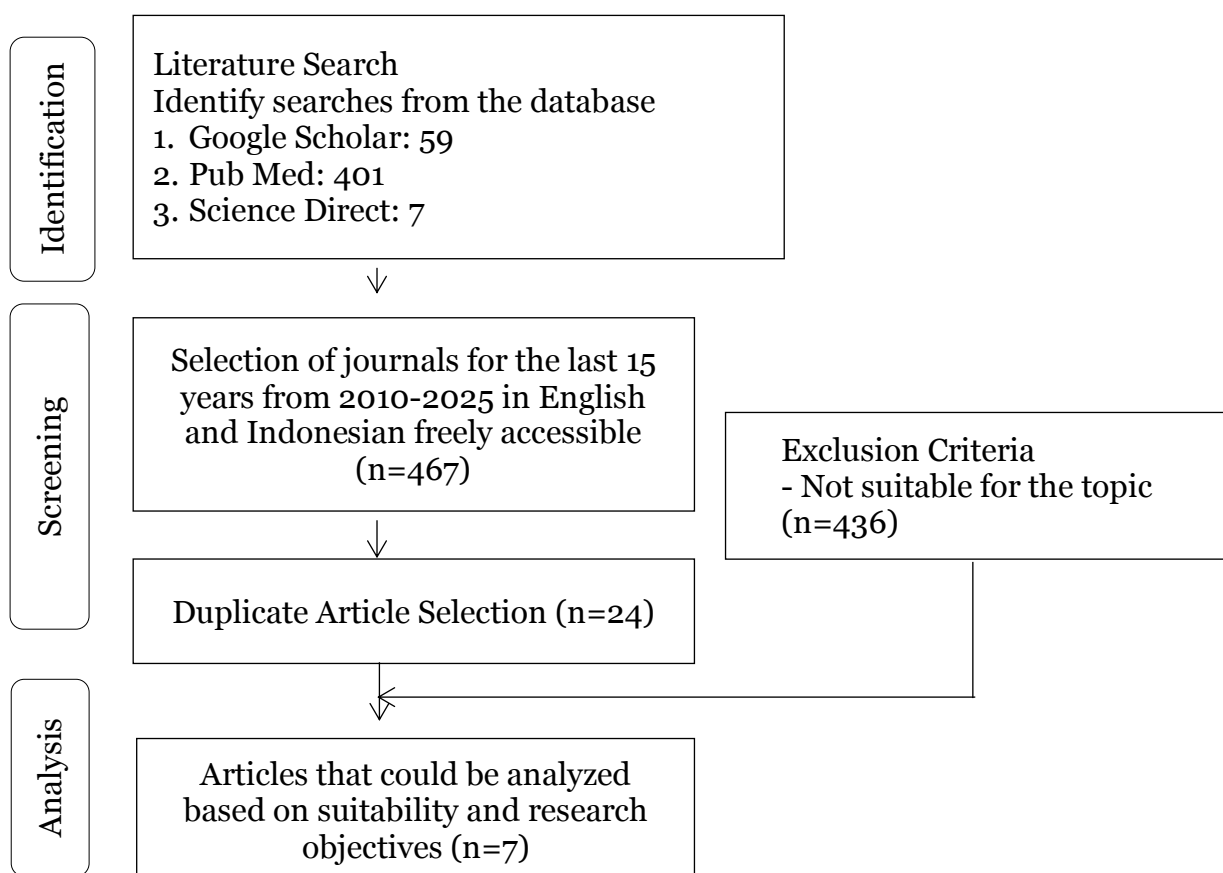


Figure 1. PRISMA flow diagram of studies search

Summary of literature

The results of this scoping review are presented in a summary table that includes the selected articles. Based on the review of seven relevant articles, the information obtained from each article is systematically summarized and presented in Table 1. This table provides a comprehensive overview of the methodology, key findings and contributions of each article in the context of the topic. As such, it aims to facilitate understanding and comparison of findings from the existing literature.

Research shows that the implementation of occupational safety and health (OSH) programs in the palm oil sector has a positive impact on employee productivity, with support systems such as the Occupational Health Effort Post strengthening OSH implementation. This is supported by findings that highlight the importance of such programs in improving worker outcomes [17]. However, the implementation of the Occupational Health Effort Post has not been optimal due to a lack of trained human resources and technical constraints, thus requiring revitalization through continuous training[18]. Informal farmers experience many health problems, making the Occupational Health Post a strategic platform for promotive and preventive services, which requires multisectoral support [19]. Family-based interventions, such as the Farmers Safety program, were shown to be effective in improving the capacity of oil palm smallholder families in handling work accidents[20]. Despite these benefits, the Occupational Health Effort Post is often hampered by cadres' weak understanding and limited facilities[21,22]. In addition, the establishment of Occupational Health Posts faces human resource constraints, although funds and facilities may be available, highlighting the importance of cross-sectoral communication and training [23].

DISCUSSION

Revitalizing the Occupational Health Effort Post for oil palm plantation workers is a strategic step to improve occupational health and safety (OHS) protection in the informal sector which is vulnerable to occupational risks[17]. The Occupational Health Effort Post is a strategic step in protecting informal workers because it increases access to occupational health services for informal workers who have previously been difficult to reach by formal health services. The Occupational Health Effort Post provides promotive, preventive, and simple treatment services that are easily accessible in the work environment or worker community[24,25]. Based on findings from various studies, it shows that the Occupational Health Post services are currently still facing various obstacles, such as a lack of trained human resources, minimal infrastructure, and low worker participation. In fact, palm oil plantation workers are often exposed to hazards such as pesticides, poor ergonomics, and work accidents, so a more effective approach is needed through the Occupational Health Post[18,19].

Research Putri et al. shows that family-based training and mentoring programs, such as Farmers Safety, can improve workers' knowledge and skills in first aid and accident prevention. This is in line with the need for revitalization of the Occupational Health Effort Post which not only focuses on curative services, but also promotive and preventive, such as socialization of the use of personal protective equipment (PPE), work ergonomics, and pesticide management. In addition, the active involvement of Occupational Health Effort Post cadres and cross-sector support, including health centers, village governments, and companies, can strengthen the sustainability of the program. It is also important to pay attention to funding and infrastructure aspects[20]. Research Pangkey et al. and Sudarmo et al. revealed that limited funds are the main obstacle to the operation of the Occupational Health Effort Post. Therefore, revitalization must include the allocation of a special

Table 1. Summary of literature found

No	Name Researcher	Year	Research Title	Research Design	Respondents/ Participants	Findings	Conclusions
1	Tauwi, Izharuddin Pagala [17]	2022	Implementasi Program K3 terhadap Produktivitas Karyawan PT. Tani Prima Makmur Unit PKS Konawe	Quantitative	Employee of PT Tani Prima Makmur palm oil processing plant	Occupational safety and health programs have a significant impact on increasing productivity. The safety aspect focuses on preventing unsafe actions and conditions. Meanwhile, the occupational health aspect includes health insurance services, periodic health checks, and the provision of sports facilities for employees.	Occupational Safety and Health programs improve productivity and safety. Their implementation is important in the palm oil sector, demonstrating the need for Occupational Health Efforts to support sustainability and job security
2	Muhammad Alwi Siregar, Tri Niswati Utami [18]	2022	Analisis Pelayanan Pos UKK Pekerja Informal di Medan Sunggal	Descriptive qualitative	8 informants: head of community health center, cadres, informal workers	Occupational Health Services are running but not optimized. Obstacles: difficulty in gathering residents, lack of trained human resources, minimal technology.	Continuous training and coaching is needed to revitalize the Occupational Health Effort Post so that it can optimally serve informal workers, including in oil palm plantations
3	Tri Niswati Utami, Hubban Fathani Manik,	2025	Needs Assessment: Occupational	Descriptive qualitative	35 FGD participants (farmers, village	Musculoskeletal complaints are high, Personal Protective	Occupational health posts are needed for farmers (including

No	Name Researcher	Year	Research Title	Research Design	Respondents/ Participants	Findings	Conclusions
	Joel Rey Ungsang Acob, Destanul Aulia, Sahrir Sillehu [19]		Health Effort Post in Informal Sector (Petani di Pakpak Bharat)		officials, head of community health center)	Equipment is not used, the work environment is unsafe. The Occupational Health Post is considered a solution for the prevention and improvement of farmers' health	oil palm) as a means of promotive and preventive measures based on community needs. Revitalization needs to be supported by training and multi-sectoral support.
4	Silvia Elki Putri, Rozar Rayendra, Pratiwi Gasril, Alfaizun Nur Alfidin, Maulia Zhafira, Suci Hidayani, Aulia Wahyu Illahi [20]	2023	Farmers Safety: Penguatan P3K Keluarga dalam Penatalaksanaan Kecelakaan Kerja Sawit	Participatory intervention	30 members of Family Empowerment and Welfare, community health center partners and village governments in Kampar District, Riau Province.	The Farmers Safety program increases the knowledge and skills of families to quickly handle palm oil accidents	The program is effective as part of an integrated Occupational Health Post to support family-based OSH, particularly relevant for informal workers in the palm oil sector.
5	Claudia I. F. Pangkey, Paul A. T. Kawatu, Ribka Wowor [21]	2018	Analisis Pelaksanaan Pelayanan Pos UKK di Puskesmas Teling Atas, Manado	Descriptive qualitative	5 informants consisting of implementers and cadres of the Occupational Health Effort Post	Occupational Health Post services have not been maximized. Obstacles: lack of human resources, lack of facilities, promotive/preventive	Revitalization of Occupational Health Effort requires cadre training and improved facilities to run according to standards

No	Name Researcher	Year	Research Title	Research Design	Respondents/ Participants	Findings	Conclusions
6	Lisnawati, Agus Sya' bani Arlan, Nida Urahmah [26]	2024	Partisipasi Masyarakat dalam mengikuti Kegiatan Pos Upaya Kesehatan Kerja (UKK) di Desa Karias dalam Kecamatan Banjang Kabupaten Hulu Sungai Utara	Descriptive qualitative	People in Karias Village	activities are not routine The Occupational Health program has not been running optimally. There are inhibiting factors, namely the lack of knowledge and awareness of the community about the importance of health checks, as well as busy work that prevents them from attending.	The Occupational Health Post needs continuous assistance and training to be able to carry out promotive and preventive functions properly, especially in informal worker areas.
7	Fatimah Sudarmo, M Kamali Zaman, Muhamadiyah [23]	2019	Analisis Pembentukan Wadah UKK Kelompok Tani Sawit Desa Suka Maju, Kampar	Qualitative evaluative	Head of community health center, village officials, palm oil farmer cadres	Human resource needs are the main constraint, funds and facilities are available. Cross-sectoral communication and coaching is needed for farmers to run the Occupational Health Post	The establishment and revitalization of Occupational Health Posts in oil palm smallholder communities is urgently needed as a form of OHS protection. Cross-sector support and cadre strengthening are key to success.

budget, both from the village government (for example through village funds) and the private sector (CSR plantation companies). In addition, the use of simple technology, such as digital recording systems or health monitoring applications, can improve service efficiency [21,23].

Occupational Health Posts play a crucial role in improving the occupational safety and health of oil palm plantation workers through a community-based approach. As the frontline of occupational health services in the informal sector, Occupational Health Posts can provide education about specific occupational risks on plantations, such as pesticide exposure, ergonomic hazards during harvesting, or injuries from heavy equipment. By conducting regular counseling, training on the use of personal protective equipment (PPE), and first aid simulations for work accidents, Occupational Health Posts are able to increase workers' awareness of safe work practices. In addition, Occupational Health Posts function as early health monitoring centers, where trained cadres can conduct simple checks (for example, blood pressure or symptoms of pesticide poisoning) and refer serious cases to health facilities. Collaboration with health centers and plantation companies also allows Occupational Health Posts to access resources such as medical devices, operational funds, or vaccination programs. By empowering workers as cadres, Occupational Health Posts create a sustainable early detection and prevention system, thereby reducing the number of work accidents and work-related diseases on oil palm plantations[18,19,21,23].

Although Occupational Health Posts have great potential in improving the OHS of oil palm workers, their implementation still faces several challenges. One of the main problems is limited human resources, where Occupational Health Post cadres are often inadequately trained to handle specific risks in oil palm plantations, such as pesticide poisoning or musculoskeletal disorders. In addition, the limited availability of facilities and infrastructure, such as personal protective equipment (PPE), first aid kits, or basic health check-up tools, reduces the effectiveness of services. Low worker participation is also an obstacle, because many are not yet aware of the importance of Occupational Health Posts or are reluctant to spend time on promotive and preventive activities. Another factor is the lack of financial and policy support, both from companies and local governments, so that programs are often not sustainable. Finally, weak coordination between Occupational Health Posts, health centers, and companies causes overlapping programs or lack of technical assistance. Without improvements in these aspects, the role of Occupational Health Posts in protecting oil palm workers will remain suboptimal[18,19,21,23].

Occupational Health Effort Posts play a very important role in supporting the occupational safety and health of informal workers. Studies conducted in several areas with a concentration of informal workers revealed that the existence of Occupational Health Effort Posts significantly increased workers' knowledge, awareness, and behavior related to health and safety risks in the workplace. In addition, Occupational Health Effort Posts provide easier and more affordable access to occupational health services, including first aid and education on preventing occupational accidents. Informal workers involved in the Occupational Health Effort Post program reported a decrease in the incidence of accidents and occupational health disorders, as well as an increase in their sense of security and productivity. These findings confirm that Occupational Health Effort Posts are an effective and sustainable strategy to strengthen occupational health protection in the informal sector which has so far been underserved by the formal health system[9,16,21–23,27].

For further research on the revitalization of Occupational Health Posts for informal workers in oil palm plantations, it is recommended to conduct an in-depth

evaluation of the effectiveness of the revitalization program that has been implemented, including its impact on reducing the number of work accidents and increasing worker productivity. A mixed-methods approach can be used to measure the success of the program comprehensively. In addition, the development of a partnership model between Occupational Health Posts, plantation companies, local governments, and NGOs needs to be explored to create sustainable funding, with case studies on plantations that have successfully implemented this partnership. Capacity building of cadres through digital technology, such as mobile applications for training, should also be studied, including specific materials such as pesticide handling and first aid. Given cultural diversity, research should develop an adaptive Occupational Health Post model with local values and involve traditional leaders as agents of change. Policy analysis is needed to identify barriers to the implementation of existing regulations, as well as policy recommendations to support Occupational Health Posts. Long-term research is also important to monitor changes in workers' health status related to pesticide exposure and access to health services. Finally, a family-based approach can be adopted to improve the effectiveness of Occupational Health Posts, by involving family members in OSH training and a household-based health monitoring system.

CONCLUSIONS

Based on the results of the research reviewed, it can be concluded that the OSH program and the Occupational Health Effort Post in the oil palm plantation sector have a positive impact on worker productivity and health, although their implementation still faces various obstacles. The Occupational Health Effort Post has proven to be a strategic platform for community-based occupational health services, especially in promotive and preventive efforts. However, its effectiveness is still hampered by the lack of trained human resources, limited infrastructure, and weak coordination across sectors. To strengthen the role of the Occupational Health Post, it is recommended that: Capacity building of cadres through continuous training on palm oil sector-specific OHS, including pesticide handling, ergonomics, and first aid. Strengthening Collaboration by involving companies, local governments, and health centers in providing funds, facilities, and technical assistance. Technology Optimization by utilizing digital applications or systems for health monitoring and case reporting. Holistic Approach that integrates Occupational Health Post with family and community programs to reach informal workers more effectively. Continuous Evaluation to ensure the program is on target and able to adapt to the needs in the field.

CONFLICT OF INTEREST

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

FUNDING

This study did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors. The research was fully supported by the academic resources and facilities of the Faculty of Public Health, Universitas Diponegoro, without external financial assistance

ACKNOWLEDGMENT

The authors would like to express their sincere gratitude to the Faculty of Public Health, Universitas Diponegoro, for providing the academic environment and resources that

supported this research. We also extend our thanks to the developers of the VOSviewer software, which was instrumental in the bibliometric analysis and visualization.

DECLARATION OF ARTIFICIAL INTELLIGENCE USE

The authors acknowledge that artificial intelligence (AI)-based tools were employed during the preparation of this manuscript. Specifically, AI-supported language models (e.g., ChatGPT) were used for language refinement, improvement of grammar, and structuring of sentences to enhance the readability and clarity of the manuscript. No AI tools were used for data analysis, interpretation, or the generation of original scientific content.

REFERENCES

- [1] Istisya AS, Denny HM, Setyaningsih Y. Persepsi Pekerja Perkebunan Kelapa Sawit Tentang Recognition (Pengenalan) Bahaya pada Perkebunan Kelapa Sawit di Kabupaten Bengkulu Tengah. *Health Information: Jurnal Penelitian* 2023;15:1–9.
- [2] Kemenaker RI. Profil Keselamatan dan Kesehatan Kerja Nasional Indonesia Tahun 2022. Jakarta: Direktorat Jenderal Pembinaan Pengawasan Ketenagakerjaan dan Keselamatan dan Kesehatan Kerja Kementerian Ketenagakerjaan RI; 2022.
- [3] Mauliddin MA. Kasus Kecelakaan Kerja Pekerja Perkebunan Kelapa Sawit. Jakarta: Isafety; 2024.
- [4] Lina J, Hartono, Sawitri MR, Rosmeri, Muharranran F. Pengaruh faktor risiko pekerja pemanen kelapa sawit terhadap terjadinya keluhan musculoskeletal disorders (MSDS) di PT . Perkebunan Nusantara IV unit Kebun Meranti Paham. *J Kesmas Prima Indonesia* 2023;7:202–8. <https://doi.org/https://doi.org/10.34012/jkpi.v7i2.4161>.
- [5] Myzabella N, Fritschi L, Merdith N, El-Zaemey S, Chih H, Reid A. Occupational health and safety in the palm oil industry: A systematic review. *International Journal of Occupational and Environmental Medicine* 2019;10:159–73. <https://doi.org/10.15171/ijoem.2019.1576>.
- [6] Baghdadi A. Navigating occupational safety and health challenges in sustainable infrastructure projects: a comprehensive review. *Frontiers in Built Environment* 2024;10:1–12. <https://doi.org/10.3389/fbuil.2024.1414366>.
- [7] Istisya AS, Denny HM, Setyaningsih Y. Potential Hazards and Associated Causal Factors in the Occupational Environment of Palm Oil Workers. *Indonesian Journal of Occupational Safety and Health* 2024;13:116–23. <https://doi.org/10.20473/ijosh.v13i1.2024.116-123>.
- [8] Kemenkes RI. Hidupkan Pos UKK Agar Pekerja Sektor Informal Tersentuh Layanan Kesehatan Kerja. Jakarta: Kementerian Kesehatan Republik Indonesia; 2016.
- [9] Isnaeni LMA. Kesehatan Kerja Sektor Informal. Jakarta: UP Press; 2021.
- [10] Sukismanto, Suwanto, Kadaryati S, Prasetyaningrum YI. Kebutuhan Pembinaan Keselamatan dan Kesehatan Kerja (K3) Pada Pos Upaya Kesehatan Kerja (Pos UKK) Bagi Pekerja Pada Pekerjaan Sektor Informal. *Jurnal Bidang Ilmu Kesehatan* 2023;13:12–23. <https://doi.org/10.52643/jbik.v13i1.2948>.
- [11] Agustin H, Arianto ME, Rifai M. Penyelenggaraan Pos Upaya Kesehatan Kerja Terintegrasi di Desa Wisata Kasongan, Bantul D.I Yogyakarta. *Jurnal Kesehatan Komunitas* 2023;9:637–47. <https://doi.org/10.25311/keskom.Vol9.Iss3.1454>.

- [12] Faridah F, Hasmar W, Fatmawati TY. Inovasi Program Pos Ukk Dengan Gangguan Muskuloskeletal Pada Pekerja Batik. *JMM (Jurnal Masyarakat Mandiri)* 2023;7:5989. <https://doi.org/10.31764/jmm.v7i6.19417>.
- [13] Aini N. Gambaran Pelaksanaan Kesehatan Kerja Sektor Informal melalui Pos Upaya Kesehatan Kerja (UKK) di Daerah Istimewa Yogyakarta. *Jurnal Formil (Forum Ilmiah) KesMas Respati* 2020;5:36–46.
- [14] Tinggogoy BLT, Kawatu PAT, Tucunan AAT. Analisis Pelaksanaan Program Upaya Kesehatan Kerja pada Pos Upaya Kesehatan Kerja Gudang Pala di Wilayah Kerja Puskesmas Tuminting Kota Manado. *Kesmas: Jurnal Kesehatan Masyarakat* 2018;7:1–9.
- [15] Rosanti E, Andhika Akbar Rahma R, Hamawi M, Arifah DA, Rahmania A, Ma'rifah S. Optimalisasi Peran Kader Pos UKK Demang Jaya Sehat melalui Pemanfaatan Media Penyuluhan Kesehatan Sederhana. *Warta LPM* 2024;27:303–12. <https://doi.org/10.23917/warta.v27i2.3990>.
- [16] Prasetyo E, Ulfa M, Mubaroq MH. Optimalisasi Peran Pos UKK (Upaya Kesehatan Kerja) pada Pekerja Sektor Informal di Kabupaten Kudus. *Jurnal Pengabdian Dan Pemberdayaan Kesehatan* 2024;1:78–84. <https://doi.org/10.70109/jupenkes.v1i1.11>.
- [17] Tauwi T, Pagala I. Implementasi Program Keselamatan Dan Kesehatan Kerja (K 3) Terhadap Produktivitas Karyawan Pada PT. Tani Prima Makmur Unit Pabrik Pengolahan Kelapa Sawit (Pks) Kabupaten Konawe. *SIBATIK JOURNAL: Jurnal Ilmiah Bidang Sosial, Ekonomi, Budaya, Teknologi, Dan Pendidikan* 2022;1:31–40. <https://doi.org/10.54443/sibatik.v1i2.10>.
- [18] Siregar MA, Utami TN. Analisis Pelayanan Pos Upaya Kesehatan Kerja Pekerja Informal Di Medan Sunggal. (*Jurnal Ilmiah Mahasiswa Kesehatan Masyarakat*) 2022;7:63–9. <https://doi.org/10.37887/jimkesmas.v7i2.25728>.
- [19] Utami TN, Manik HF, Acob J rey U, Aulia D, Sillehu S. Needs assessment : occupational health effort post in the informal sector in Pakpak Bharat District , Indonesia. *Journal of Community Empowerment for Health (JCOEMPH)* 2025;8:13–7. <https://doi.org/10.22146/jcoemph.86388>.
- [20] Putri SE, Rayendra R, Gasril P, Alfidin AN, Zhafira M, Hidayani S, et al. FARMERS SAFETY: Penguatan P3K Keluarga dalam Pencegahan dan Penatalaksanaan Kecelakaan Kerja Sawit. *Borneo Community Health Service Journal* 2023;3:74–81. <https://doi.org/10.35334/neotype.v3i3.4861>.
- [21] Pangkey I F C, Kawatu AT P, Wowor R. Analisis Pelaksanaan Pelayanan Pos Upaya Kesehatan Kerja Di Wilayah Kerja Puskesmas Teling Atas Kota Manado. *MAHESA : Malahayati Health Student Journal* 2021;7:790–5.
- [22] Muliyanto, Lubis HS, Syahri IM. Pelaksanaan Program Upaya Kesehatan Kerja Pada Pos UKK di Wilayah Kerja Puskesmas Kampung Bugis Kota Tanjungpinaang Kepulauan Riau 2009.
- [23] Sudarmo F, Zaman M kamali, Muhamadiyah. Analsis Pembentukan Wadah Upaya Kesehatan Kerja Kelompok ani Sawit di Desa Suka Maju, Wilayah Kerja Puskesmas Tapung Hilir I, kabupaten Kampar Tahun 2018. *Jurnal Kesehatan Komunitas* 2019;5:7–12. <https://doi.org/10.25311/keskom.Vol5.Iss1.281>.
- [24] Pradana B, Tongko M, Dwicahya B. Gambaran Penerapan Program Pos Upaya Kesehatan Kerja (UKK) Pada Pekerja Sektor Informal di Kabupaten Banggai. *Buletin Kesehatan MAHASISWA* 2023;1:101–9. <https://doi.org/10.51888/jpmeo.v1i3.172>.

-
- [25] Rini TS, Wahyuningsih AnS. Analisis Potensi Pembentukan Pos UKK pada Gaptokan Ngudi Luhur Griwoyo. *Jurnal Kesehatan Masyarakat* 2022;10:504–11. <https://doi.org/10.14710/jkm.v10i4.35051>.
- [26] Lisnawati, Arlan AS, Urahmah N. Partisipasi Masyarakat dalam Mengikuti Kegiatan Pos Upaya Kesehatan Kerja (UKK) di Desa Karias Dalam Kecamatan Banjang Kabu, Administrasi Tinggi, Sekolah Administrasi, Ilmupaten Hulu Sungai Utara. *Jurnal Pelayanan Publik* 2024;1:512–21.
- [27] Fajrianti G. Hubungan Pengetahuan dan Sikap dengan Rendahnya Kunjungan Pekerja Ke Pos Usaha Kesehatan Kerja (UKK). *Surya Medika* 2021;16:43–6.