Occupational Health: The Scope of Social Science Supporting Awareness, Assessment, Control, and Health Surveillance in ASEAN Context[*]

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Abstract

This research aims to It necessitates the application of occupational health social sciences to access underlying factors such as behavior, beliefs, and social structures that influence workers' well-being. Methodology: Qualitative data secondary data from 40 fourth-year students undergoing internships in industrial settings revealed that occupational health plays an increasingly significant role in the professional practice of occupational safety officers and AI Prompt program literature. Results: This article presents a social science framework to support the processes of awareness, assessment, control, and health monitoring, aiming to deepen understanding and enhance the effectiveness of occupational health practices in complex social contexts, especially within the diverse socio-economic and cultural landscapes of ASEAN member states.

Keywords: Occupational health social science, Health risk and Health surveillance, ASEAN labor migration

Introduction

Occupational health is a scientific field focusing on the preservation and promotion of health in the workplace. It plays a vital role in assessing and managing potential health hazards arising from work environments, such as physical injury or occupational diseases. However, determinants of workers' health are not limited to physical pollutants or chemical exposures but include critical social factors like poverty, limited knowledge, and inequalities based on gender or ethnicity. To analyze these comprehensively, social sciences provide indispensable tools for holistic examination. This is particularly relevant in ASEAN, where cross-border labor migration, informal labor sectors, and cultural diversity significantly shape occupational health outcomes jobs description roll model occupational health in safety inspection. Occupational Health is a discipline that focuses on the promotion, prevention, and control of health-related factors affecting workers in the workplace. Its primary

objective is to minimize occupational risks and ensure the safety and well-being of employees across all industrial sectors. Roles of occupational health in safety inspection health risk and health surveillance.

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Risk Assessment

• Conducting analysis and evaluation of potential hazards in work processes, such as exposure to chemicals, excessive noise, dust, heat, heavy lifting, etc.

• Utilizing occupational health tools such as risk assessment forms, process flow diagrams, and implementing the hierarchy of control measures to manage risks effectively.

Workplace Environmental Monitoring

• Measuring environmental factors including noise levels, temperature, lighting, chemical concentrations, and dust particles in the workplace.

• Comparing measured values against legally mandated standards, such as those issued by the Ministry of Labor or international organizations like WHO, NIOSH, or OSHA.

Health Surveillance

• Conducting health examinations based on job-specific risks, including audiometry, pulmonary function tests, and blood analyses.

• Using collected data to plan and improve workplace environments and to prevent occupational illnesses.

Training and Awareness

• Organizing training programs to educate workers about occupational hazards related to their tasks.

• Promoting awareness on personal safety practices, including the correct use of personal protective equipment (PPE) and appropriate emergency response procedures.

Reporting and Recommendations

• Preparing safety inspection reports and providing practical recommendations for improvement.

• Collaborating with safety engineers, human resources personnel, and management teams to cultivate a culture of workplace safety.

Control and Follow-Up

• Monitoring the implementation of recommended safety measures, such as installing dust extraction systems or improving ventilation.

• Reviewing the long-term effectiveness of control measures to ensure sustained occupational health and safety standards.

ASEAN labor migration

Labor migration within the ASEAN region has become a critical socioeconomic phenomenon, particularly following the implementation of the ASEAN Economic Community (AEC) in 2015, which aimed to promote regional integration, economic mobility, and labor market connectivity. Thailand plays a dual role as both a sending and receiving country in this migration dynamic, with Thai workers seeking employment in countries such as Singapore, Malaysia, and South Korea, while simultaneously hosting a large number of migrant workers from neighboring states.

Research by Chantavanich et al. (2013) highlights that Thai labor migration is largely driven by economic disparities, rural unemployment, and wage differentials among ASEAN countries. Push factors such as low agricultural productivity and limited rural employment opportunities compel many Thai workers, especially from the Northeast region, to migrate abroad. Pull factors include higher wages, better employment benefits, and the demand for low-skilled and semi-skilled labor in more industrialized ASEAN nations.

However, despite the AEC's promise of labor mobility, current migration is still constrained by national regulations, visa restrictions, and discrepancies in the recognition of qualifications. According to a study by IOM (2019), the ASEAN Mutual Recognition Arrangements (MRAs) have largely benefited high-skilled professionals such as engineers, architects, and nurses, while low-skilled workers continue to face barriers, often migrating through informal or semi-legal channels. This exposes Thai workers to labor exploitation, trafficking risks, and a lack of social protection.Jampaklay and Kittisuksathit (2009) also point to the role of social networks and remittances in sustaining migration patterns. Migrants often rely on kinship networks for job placement, housing, and support. Remittances sent back to Thailand contribute significantly to household income, education, and local economic development, particularly in rural provinces. Moreover, gendered aspects of migration have gained attention, with increasing numbers of Thai women engaging in domestic work and caregiving abroad. Studies by Huguet and Punpuing (2005) underscore the vulnerabilities they face, including limited legal rights and exposure to gender-based violence. Thái labor migration within ASEAN reveals a complex interplay of economic necessity, structural barriers, and sociocultural dynamics. While the ASEAN integration agenda has created opportunities for skilled labor, more inclusive policies and protections are needed to ensure that low-skilled Thai migrants can also benefit from safe and equitable labor mobility.

Objectives

Analytical to qualitative research to curriculum mapping occupation hygiene descriptive Asean social science data benchmarks with AI Prompts about occupational health social science, health risk and health surveillance and Asean labors migration.

Literature Review

Occupational Health: The Scope of Social Science Supporting Awareness, Assessment, Control, and Health Surveillance in the ASEAN Context

1) Introduction: why occupational health in ASEAN needs social science

Occupational health (OH) in ASEAN is strongly shaped by the *social organization of work*: large informal economies, extensive subcontracting and SMEs, migrant and cross-border labor mobility, uneven enforcement capacity, and sectoral concentration in agriculture, construction, manufacturing, and services. These realities help explain why specialized occupational health services often reach only a minority of workers globally and why prevention and early detection are harder in informal and precarious work arrangements (WHO, 2017).

Social science contributes by:

1. explaining how workers and organizations *perceive risk and decide to act*;

2. improving *measurement* (exposure, behaviors, reporting, inequalities);
3. strengthening *implementation* of controls (adoption, compliance, sustainability); and
4. designing *surveillance systems* that are legitimate, used, and inclusive—especially for SMEs, informal workers, and migrants (ILO, 2013; ILO, 2019).

2) Social science supporting Awareness (risk recognition, safety culture, and health literacy)

2.1 Concepts and theories commonly used in OH

Across OH research, awareness interventions frequently draw on:

- Risk perception and health/occupational health literacy (understanding hazards, rights, and protective actions).
- Safety climate/culture (shared norms about reporting, PPE use, and learning from incidents).
- Behavior-change models (e.g., Health Belief Model, Theory of Planned Behavior) to explain adoption of preventive behaviors and reporting.

ASEAN-relevant empirical work emphasizes that informal workers often face structural barriers to knowledge and prevention—time pressure, piece-rate incentives, limited bargaining power, and limited access to OSH training and services (Nankongnab et al., 2015; Kongtip et al., 2015).

2.2 Practical ASEAN entry points: SMEs and participatory methods

ASEAN guidance explicitly targets SMEs with structured, practical steps for hazard identification, risk assessment, and continuous improvement, recognizing that SMEs require feasible, low-cost approaches (ASEAN, 2013). Evidence and regional practice also support participatory, action-oriented training—notably ILO's PAOT approaches such as WISE—because they increase ownership, peer learning, and feasible local solutions in small workplaces (ILO, 2011; ILO, 2020; Nguyen et al., 2014).

2.3 Migrant workers and communication/trust

Migrant workers can experience language barriers, precarious status, and limited access to services—making *trust, culturally appropriate communication, and rights-awareness* central to prevention (ILO, 2024).

Implication for ASEAN OH: Social science suggests awareness is most effective when it is workplace-embedded, peer-supported, rights-informed, and paired with feasible controls (not "knowledge only").

3) Social science supporting Assessment (measuring hazards, vulnerabilities, and inequities)

3.1 Assessment must include social and organizational determinants

Traditional OH assessment focuses on exposures (noise, chemicals, heat, ergonomic loads). Social science expands assessment by adding:

- employment arrangements (informal, subcontracted, platform/gig);
- power relations (ability to refuse unsafe work);
- organizational systems (supervision, production pressure, safety leadership); and
- social stratification (migrants, women, low-wage groups, small enterprises).

WHO stresses that employment conditions and workplace hierarchy affect health and interact with hazards (WHO, n.d.).

3.2 Participatory assessment tools for SMEs and informal work

ASEAN and ILO emphasize structured assessment processes (hazard ID → risk assessment → OSH planning) and encourage pragmatic tools that fit SMEs (ASEAN, 2013; ILO, 2021).

Participatory walk-throughs, checklists, and worker-led problem identification (common in WISE/PAOT) are repeatedly highlighted as practical assessment strategies that also build awareness and ownership (ILO, 2020; Nguyen et al., 2014).

3.3 Climate and heat stress as an assessment priority

Heat stress is increasingly a core OH risk in Southeast Asia, affecting health and productivity and intersecting with inequality (outdoor/manual jobs, informal workers). WHO and ILO reports frame heat stress as a combined physiological and socioeconomic risk requiring industry- and region-specific plans (ILO, 2019; WHO, 2025).

Research focused on South-East Asia further situates workplace heat as a climate-linked OH challenge with direct implications for surveillance, prevention, and labor policies (Kjellstrom et al., 2017).

Implication for ASEAN OH: Assessment frameworks should explicitly measure *who is missed* (SMEs/informal/migrants), not only "average exposure," and should integrate climate-linked risks.

4) Social science supporting Control (adoption, compliance, and sustainable prevention)

4.1 From hierarchy of controls to "implementation reality"

Engineering controls, substitution, and administrative controls are often known—but adoption depends on organizational capacity, incentives, enforcement, and worker participation. Social science (implementation science; organizational sociology) helps explain why controls fail: cost constraints, production pressure, weak inspection reach, and fragmented supply chains.

ASEAN's more recent regional learning emphasizes documenting good practices for workers in SMEs and the informal economy, reflecting the practical focus on what can actually be implemented in member states (ASEAN, 2024).

4.2 Participatory control as a proven strategy in small workplaces

PAOT/WISE approaches operationalize control by guiding workplaces to identify feasible improvements and implement them through self-help and joint action—shown to produce better outcomes than traditional programs in SME settings (Nguyen et al., 2014; ILO, 2011/2020).

4.3 Psychosocial risks and mental health at work

OH control increasingly includes psychosocial hazards (work stressors from design/management of work). ILO defines psychosocial hazards as factors in work design/management that increase the risk of work-related stress (ILO, 2022).

WHO's guidelines provide evidence-based recommendations for organizational interventions, training, and return-to-work supports (WHO, 2022).

Implication for ASEAN OH: Control strategies should combine (1) technical hazard controls and (2) organizational/policy levers that make controls feasible in SMEs and protective for precarious and migrant workers.

5) Social science supporting Health surveillance (detection, reporting, and learning systems)

5.1 Surveillance gaps: under-detection and exclusion

Surveillance systems often miss occupational diseases because of under-recognition, weak reporting incentives, and limited coverage in informal employment. Thailand-focused research notes development of a passive surveillance system for occupational diseases using standardized reporting forms and highlights challenges for coverage and implementation among informal workers (Kongtip et al., 2015). ILO guidance on national systems for recording and notification emphasizes multi-actor engagement (labor, health, social security, employers, workers) to build functional reporting systems (ILO, 2013).

5.2 Integrating OH into primary health care and community systems

For ASEAN contexts with large informal sectors, integrating occupational health services into public health/primary care is a frequently recommended pathway—aiming to improve access and disease surveillance for workers outside large enterprises (ILO, 2008).

5.3 Toward regional alignment

ASEAN-OSHNET emphasizes regional cooperation in information exchange, training, standards, research, and inspection capacity—an enabling platform for surveillance harmonization and shared learning (ASEAN-OSHNET, 2009; ILO, n.d.).

There are also documented efforts toward developing an ASEAN guideline for workplace health surveillance criteria—reflecting a push toward "one system" alignment (ChemicalWatch-hosted document, c. 2019).

Implication for ASEAN OH: Social science strengthens surveillance by improving *case recognition*, *worker trust*, *reporting behavior*, and *system legitimacy*, while policy/organizational studies inform feasible integration models for informal and migrant workers.

6) Synthesis: a practical social-science agenda for ASEAN OH

Across awareness → assessment → control → surveillance, the literature suggests ASEAN OH policy and research benefit most when they:

1. Target inclusion: SMEs, informal workers, migrants. (WHO, 2017; ASEAN, 2024)
2. Use participatory approaches to bridge resource constraints and strengthen compliance. (ILO, 2020; Nguyen et al., 2014)
3. Integrate with primary care/community systems to expand reach and surveillance. (ILO, 2008)
4. Update assessment and controls for climate-linked risks, especially heat stress. (WHO, 2025; ILO, 2019; Kjellstrom et al., 2017)
5. Treat psychosocial risks as OSH risks, not "optional wellness." (WHO, 2022; ILO, 2022)

Methodology

Population

Secondary data questionnaire social science Research to Research 40 student's trainee safety officer in Thailand and literature systemic reviews with AI Prompts.

Phase 1: Data Preparation

Questionnaire Development by LASC SSKRU

- o Design structured questions related to:
    - Occupational health and hygiene
    - Health surveillance practices
    - Labor relations and workplace conditions

Data Collection

- o Distribute questionnaires to **internship workplaces** of students
- o Target: Safety officers, supervisors, HR staff

Data Compilation

- o Gather and digitize responses
- o Compile data into a central database (CSV, Excel, etc.)

Phase 2: Data Processing

Data Cleaning

- o Remove incomplete or inconsistent entries
- o Normalize and categorize data fields

Data Transformation

- o Convert qualitative answers into analyzable formats (e.g., coding Likert scales, categorizing open-ended responses)

Phase 3: AI-Based Analysis

AI Integration

- o Use AI tools or platforms (e.g., ChatGPT, Gemini and AI Chat) for:
    - Text mining
    - Sentiment analysis
    - Clustering of workplace types or risk profiles

Pattern Recognition

- o Identify trends in:

- ▪ Health risk exposure

- ▪ Compliance with safety standards

- ▪ Strength of labor relations

Phase 4: Interpretation and Reporting

Results Interpretation

- o Synthesize findings across workplace types and industries

- o Compare rural vs. urban patterns, industry sectors, etc.

Report Generation

- o Summarize insights with visual aids (charts, graphs)

- o Recommend improvements in:

  - ▪ Health surveillance systems

  - ▪ Occupational hygiene programs

  - ▪ Labor relations policies

Dissemination

- • Share findings with academic supervisors, stakeholders, or for publication

Results

1.Occupational Health Social science

Occupational health in Thailand definition and role of occupational health hygiene is a branch of public health that focuses on the prevention of occupational diseases, the promotion of workers' health, and the control of the working environment. Its aim is to ensure that workers maintain good health, safety, and can perform their occupations with a good quality of life. This is especially important in Thailand, where a large portion of the workforce is engaged in agriculture and small to medium-sized industries. Caring for workers' health is thus a vital element in the country's development.

Implementation of Occupational Health in Asean

1. Relevant Agencies

- The Ministry of Public Health, particularly the Department of Health and the Department of Disease Control, plays a key role in promoting surveillance systems and health examinations for workers.

- The Ministry of Labor, especially the Department of Labour Protection and Welfare, is responsible for enforcing laws and inspecting safety in workplaces.

- The Social Security Office provides health coverage and protection against work-related accidents.

- Institutes of Occupational Medicine and Environmental Health at several universities, such as Mahidol University, Chiang Mai University, and Khon Kaen University.

2. Occupational Health Services

- Occupational medicine clinics located at regional and provincial hospitals.

- Health screenings tailored to the specific risks of various occupations.

- Health services for informal sector workers (e.g., agricultural laborers, informal sector workers outside social security coverage).

2. Health risk and health surveillance Trends and Policies

Thailand has designated "Occupational Safety, Health, and Work Environment" as one of the core strategies under the 13th National Economic and Social Development Plan (2023–2027). This strategy emphasizes integration among government agencies, the private sector, and communities to strengthen the occupational health system sustainably.

Challenges

- Informal sector workers without social protection, such as farmers, traders, and freelancers, have limited access to occupational health services.

- Shortage of specialized personnel, including occupational physicians, safety engineers, and industrial hygienists.

- Incomplete surveillance of occupational diseases.

- Insufficient awareness among employers and employees regarding workplace hazards.

  Policy Recommendations

- Develop a centralized database system for occupational diseases.

- Support training programs and production of specialized personnel in occupational health.

- Expand occupational medicine services to informal sector workers.

- Promote active participation of employers and employees in cultivating a culture of workplace safety.

3. Asean labors migration occupation Hygiene to inspection supporting to:

3.1 Awareness

The primary component in managing occupational health risks is workers' awareness of potential hazards. Social science contributes significantly to:

- Studying workers' knowledge, attitudes, and behaviors regarding occupational risks.

- Analyzing organizational culture, individual motivation, and psychosocial factors affecting risk perception.

- Developing tools for health education and behavior change, appropriately tailored to cultural contexts.

ASEAN Context: In ASEAN countries such as Thailand, Indonesia, and the Philippines, many laborers are employed in agriculture, construction, and domestic work—sectors where safety training and hazard awareness are often limited. Migrant workers from Cambodia, Myanmar, and Laos may face language and literacy barriers, reducing their ability to perceive and respond to occupational risks.

3.2 Assessment

Risk assessment guided by social science provides insights into structural and environmental factors often overlooked by technical approaches. These include:

- Using qualitative tools such as in-depth interviews, focus groups, and socio-cultural surveys.

- Analyzing inequality in access to information, health services, and preventive opportunities.

- Understanding local belief systems and traditional practices such as herbal remedies or fate-based thinking.

ASEAN Context: In Vietnam and Malaysia, informal labor markets are prominent. Workers often rely on traditional health practices and informal networks rather than institutional healthcare systems. Assessment tools must consider these local dynamics to accurately reflect occupational health risks.

3.3 Control

Designing effective control measures requires careful consideration of social and cultural appropriateness. Social science-based control strategies involve:

- Training programs that consider workers' language and education levels.

- Promoting safe behaviors using peer-led initiatives and role models.

- Building a safety culture through labor community participation and organizational leadership.

ASEAN Context: In Indonesia, community-based health promotion strategies that involve religious and cultural leaders have been effective in enhancing occupational safety. In Singapore, multicultural workforces necessitate multilingual training modules and inclusive safety policies to ensure comprehension and adherence.

3.4 Health Surveillance and Monitoring

Health surveillance should extend beyond biomedical data to incorporate social context and structural changes. Effective health monitoring involves:

- Collecting health data disaggregated by gender, age, ethnicity, and socioeconomic status.

- Analyzing policy impacts on labor or regional migration trends that affect health risks.

- Evaluating long-term outcomes of interventions using both social and health well-being indicators.

ASEAN Context: With millions of ASEAN citizens working outside their country of origin, cross-border health surveillance becomes a key issue. Thailand's Migrant Health Program and Malaysia's foreign worker medical examination system demonstrate how regional cooperation and policy harmonization can support more inclusive health monitoring for mobile populations.

Examples of topics connecting industry occupational health with social science

Research to Research Topic	Social Issue Studied
Risk perception of informal workers exposed to chemicals	Misunderstandings about safety and lack of access to information
Social factors influencing occupational stress in healthcare workers	Labor pressure, work schedules, and gender roles
Effects of labor policies on migrant workers' mental health	Legal instability, discrimination, and access to healthcare
Barriers to occupational health services for ASEAN migrant workers	Language, documentation, fear of deportation
Cultural factors affecting PPE usage in agricultural workers	Traditional beliefs and climate-related discomfort

Conclusion

Integrating social sciences into occupational health is essential for broadening the scope of health risk analysis in increasingly complex environments. Awareness, assessment, control, and monitoring become more effective when grounded in a deep understanding of the social realities experienced by workers. In the ASEAN region, where

economic disparities, migration flows, and cultural diversity pose significant challenges, social science approaches offer vital pathways to more inclusive, equitable, and context-sensitive occupational health systems. Future policy and practice must emphasize regional collaboration, cultural competence, and participatory models that empower all sectors of the labor force.

Conclusion

This comparative analysis suggests that Indonesia's 2024 presidential election marked a significant transformation in political communication strategies, with digital platforms fundamentally reshaping how candidates construct and manage their political brands. The findings indicate that Prabowo Subianto's strategic character transformation from a serious military figure to a relatable "gemoy" persona appears to have been particularly effective in resonating with younger demographics, contributing to his electoral victory with 58.6% of votes. This transformation suggests a potential link between authenticity perception in digital spaces and electoral success, though the relationship between image makeover and voter choice remains complex.

The study reveals that each candidate adopted distinctly different approaches to digital political branding: Anies Baswedan's intellectual positioning emphasized policy achievements and governance innovations, while Ganjar Pranowo's populist strategy focused on grassroots connections through programs like "Menginap di Rumah Warga" and UMKM support initiatives. These varied strategies suggest that there may not be a single formula for successful digital political branding, but rather that effectiveness appears to depend on the alignment between candidate characteristics, strategic positioning, and target audience expectations.

The research indicates that Indonesia's digital landscape, with 75.9% internet penetration and 49.9% social media usage, has created new dynamics where social media platforms serve as primary battlegrounds for political brand construction. The findings suggest that successful digital political branding may require integration of authentic character presentation, professional competence demonstration, and strategic brand management adapted to diverse demographic segments. However, the study's focus on a single social media platform and limited timeframe suggests caution in generalizing these conclusions to broader political communication contexts.

Recommendation

The recommendations emphasize strengthening occupational hygiene as a balanced, multi-segment approach to occupational health within a social science framework by focusing on capacity building through specialized training, continuous education, and research; adopting modern technologies such as IoT, real-time monitoring, and digital platforms; promoting active participation of workers and employers via awareness programs and workplace safety committees; integrating occupational health standards into organizational management and strategic planning; expanding health risk assessment and surveillance services to cover informal sector workers; and supporting research and innovation, particularly for ASEAN migrant

labor, to develop cost-effective tools and new methods for preventing, monitoring, and controlling occupational hazards.

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