

**1st International Conference, Exhibition & Innovation  
on Public Health & International Community Services  
Waterfront Hotel Kuching, Sarawak, Malaysia  
19-22 Aug 2025**

Organiser: Universiti Teknologi MARA (UiTM), Malaysia  
Co-Organisers: Universitas Muhammadiyah Malang (UMM), Indonesia, Universitas Airlangga (UNAIR), Indonesia, UiTM Technoventure, Malaysia

**Knowledge, Awareness, and Practice Study of Occupational Safety and  
Health among Mukah Divisional Health Office Staff**

**Efa Syahmi Japeriden, Iman Nabilah Mohd Rosli, Litizia Jawai Edward, Priscilla Balok Peter, Umni  
Udaimatunnur Mezalan, Siti Nor Ain Seri Masran\***

*\*Corresponding author*

Department of Environmental Health, Faculty of Health Sciences,  
Universiti Teknologi MARA, 94300, Kota Samarahan, Sarawak, Malaysia

2022858398@student.uitm.edu.my, 2022881432@student.uitm.edu.my, 2022615204@student.uitm.edu.my, 2022677742@student.uitm.edu.my,  
2022809356@student.uitm.edu.my, sitinorain@uitm.edu.my  
Tel: +60 033572541

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**Abstract**

Despite high occupational hazard risks, only one accident was reported in five years at Mukah Divisional Health Office, suggesting underreporting possibly due to gaps in OSH knowledge, awareness, and practices (KAP). This study assessed KAP levels among 114 staff, including those from KKIA. Findings showed high OSH knowledge overall, but medium levels on PPE and safety procedures. Awareness was high except for near-miss incidents. Practices were generally good. These gaps may contribute to underreporting. Targeted interventions such as safety training, awareness campaigns, workshops, and routine OSH inspections are recommended to reduce risks and improve workplace safety.

**Keywords:** Occupational Safety and Health, Knowledge, Awareness, Practice

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DOI: <https://doi.org/10.21834/e-bpj.v10iSI35.7517>

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**1.0 Introduction**

Over the past decade, healthcare workers (HCWs) have become increasingly vulnerable to occupational safety incidents, both globally and locally (Sattar et al., 2023). In Malaysia, data from the Ministry of Health's Annual Report 2023 (2025) revealed a 50.2% increase in reported occupational accidents and injuries among HCWs compared to the previous year. This rising trend is especially alarming given the constant exposure of HCWs to high-risk hazards in their daily work environments (Kumar et al., 2022). Aluko et al. (2016) reported that HCWs are among the most affected occupational groups worldwide in terms of injury rates. Despite this, the integration of occupational safety and health (OSH) protections for HCWs often remains inadequately prioritized within national healthcare policies (Kumar et al., 2022), highlighting the urgent need for robust and effective OSH management systems across healthcare institutions.

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Globally, the presence of various occupational risks necessitates the implementation of comprehensive OSH management systems to prevent workplace accidents and enhance employee well-being (Kumar et al., 2022). Beyond safeguarding health, a well-structured OSH framework also improves organizational reputation and productivity (Paul et al., 2022). This study adopts the Knowledge, Awareness, and Practice (KAP) framework, a modified version of the commonly used Knowledge, Attitude, and Practice model, to emphasize the importance of awareness in mitigating occupational risks among HCWs (Lugah et al., 2010). Understanding how knowledge, awareness, and practices interact in an OSH context is crucial to reducing morbidity and promoting safer working environments for HCWs in Malaysia.

In the Malaysian setting, the Occupational Safety and Health Act (OSHA) 1994 serves as a foundation for fostering a culture of safety among workers, including those in the healthcare sector (Lugah et al., 2010). However, low compliance rates have contributed to persistently high accident rates (Auyong, 2014). Studies have identified gaps in OSH-related KAP among workers, with these deficiencies linked to increased exposure to hazards. These gaps are further influenced by factors such as educational background, work experience, safety training, and prior incident exposure (Kumar et al., 2022; Jamil et al., 2018). Such findings underscore the need to assess OSH KAP specifically in healthcare settings, where the risk environment is especially dynamic and complex (Paul et al., 2022).

Given this context, the Mukah Divisional Health Office was selected as a suitable site for the present study due to its diverse departmental structure and the wide range of services provided, which collectively expose staff to various occupational risks. For instance, personnel from the Vector Control Unit frequently handle pesticides, with prolonged exposure posing serious respiratory health risks (Hamzah et al., 2022). Thus, assessing the OSH KAP levels among staff at this facility is critical for informing strategies aimed at improving workplace safety (Mohd Ishanuddin et al., 2019).

One of the most pressing challenges observed at the Mukah Divisional Health Office is the significant underreporting of occupational incidents, with only one case documented in the past five years. This underreporting impedes the effectiveness of OSH management and may reflect deeper issues in the staff's KAP regarding safety procedures. Despite the importance of this issue, research on OSH KAP in Malaysian healthcare settings remains limited. In response, this study aims to evaluate the levels of OSH-related knowledge, awareness, and practices among staff at the Mukah Divisional Health Office. The study also seeks to identify specific areas requiring intervention and recommend targeted strategies to strengthen the OSH culture within the facility.

## 2.0 Literature Review

Globally, only 51% of workers who experienced occupational harm reported the incident within the past two years. Notably, Southeast Asia—including Malaysia—exhibits particularly low reporting rates, despite experiencing high incidences of workplace injuries (Lloyd's Register Foundation, 2024). In the healthcare sector, Galizzi et al. (2010) revealed that 39% of hospital workers failed to report their injuries, even though 64% of those cases required medical attention and 44% resulted in lost work time. While lower reporting rates may superficially suggest a safer work environment, unreported and untreated injuries can lead to long-term organizational costs, such as decreased productivity and increased healthcare expenditure (Probst et al., 2019). Given the inherently hazardous nature of healthcare occupations (Kumar et al., 2022), the single reported

incident over five years at the Mukah Divisional Health Office likely reflects significant underreporting. Thus, evaluating workers' Knowledge, Awareness, and Practice (KAP) of OSH is vital to identifying root causes of such underreporting and improving occupational health strategies.

Although this study does not primarily investigate the relationship between socio-demographic variables and OSH KAP levels, previous research has consistently demonstrated their influence in shaping safety behavior and understanding. Factors such as education level, years of work experience, participation in OSH training, and prior involvement in occupational incidents have all been associated with variations in KAP. For instance, higher levels of education are often linked with enhanced OSH knowledge, awareness, and practice (Paul et al., 2022; Aluko et al., 2016; Kumar et al., 2022). Yavuz et al. (2022) further supported this by demonstrating that individuals with higher educational attainment exhibit greater risk awareness, as measured by term perception. Although the impact of OSH training on knowledge outcomes varies across studies, it has shown positive associations with improved safety practices (Qaraman et al., 2022; Dhahir & Al Mayahi, 2021). Conversely, findings related to work experience are more mixed—some studies identified a strong positive relationship with KAP levels, while others found no significant correlation (Gupta et al., 2017; Lugah et al., 2010). Notably, individuals with prior incident experience tend to adopt safer workplace behaviors (Qaraman et al., 2022). Supporting these observations, research by Zhang et al. (2023) and Khadka et al. (2024) concluded that strong OSH practices are closely linked to adequate knowledge and awareness. Therefore, collecting socio-demographic data in conjunction with KAP assessments is essential for tailoring effective interventions to improve safety behaviours.

The use of KAP assessments in healthcare settings offers a structured and reliable approach to managing occupational safety and health (Alzahrani et al., 2022). As demonstrated by Qaraman et al. (2022), KAP-based findings can inform policymakers in designing evidence-based OSH programs. Subramanian et al. (2017) also highlighted the importance of KAP data in increasing hazard awareness and compliance with safety protocols, which are essential for improving incident reporting. Although studies in countries such as China have shown positive KAP relationships in healthcare environments (Zhang et al., 2023), research exploring the associations between KAP, demographic variables, and incident experiences—particularly needlestick injuries (NSIs)—remains scarce in the Malaysian context (Yazid et al., 2023). Consequently, this study on OSH KAP among staff at the Mukah Divisional Health Office aims to fill this gap by providing comprehensive data analysis, thereby identifying specific deficiencies in knowledge, awareness, and practices that may contribute to occupational health risks.

Across occupational safety and health (OSH) research, findings on the relationship between knowledge, awareness, and practice (KAP) reveal a persistent and theoretically significant disconnect between what workers know and how they behave in real work settings. Earlier studies consistently show that high OSH knowledge does not automatically translate into safe practices such as healthcare workers in Ghana, for example, demonstrated good general hazard knowledge but continued to exhibit inconsistent PPE usage and poor incident reporting patterns, indicating a gap between awareness and behaviour (Odonkor & Sallar, 2024). Similar patterns have been documented in Asian and Middle Eastern healthcare environments, where workers report strong awareness but still engage in unsafe shortcuts, often due to social norms, resource constraints, or weak institutional enforcement (Al-Seraty et al., 2021; Zhang et al., 2020). These contrasts highlight the theoretical limitation of classical KAP models, which assume a linear and rational flow from knowledge to attitude/awareness to practice; empirical evidence increasingly shows that behavioural outcomes are shaped more strongly by contextual and organisational determinants than by knowledge alone.

This real-world inconsistency aligns with broader OSH literature emphasizing the mediating influence of safety climate, defined as workers shared perceptions of management commitment and enforcement, which has repeatedly been found to override individual knowledge levels in predicting safe practices (Zohar, 1980; Neal & Griffin, 2006). Furthermore, behavioural theories such as the Theory of Planned Behavior (Ajzen, 1991) reinforce that intention and behaviour are shaped not only by knowledge but also by perceived behavioural control, subjective norms, and organisational expectations—factors absent from traditional KAP frameworks. More recent models, such as the COM-B (Capability, Opportunity, Motivation–Behaviour) framework, argue that behaviour results from an interplay of physical/psychological capability, environmental and organisational opportunity, and motivation, providing a better explanation for why well-informed workers still engage in risky behaviours (Michie et al., 2011). Taken together, contrasting previous empirical findings and applying contemporary behavioural frameworks illustrate that KAP models, while useful for baseline assessments, are theoretically insufficient to explain OSH behaviours without integrating organisational culture, behavioural intentions, and system-level constraints. This synthesis underscores the need to evolve KAP-based studies toward hybrid models that incorporate safety climate, behavioural intention theories, and socio-technical systems perspectives to capture the full complexity of worker safety behaviour.

### 3.0 Methodology

The title of this study, *“A Study of Knowledge, Awareness, and Practice (KAP) of Occupational Safety and Health (OSH) Among Staff at the Mukah Divisional Health Office”*, was chosen to reflect its primary objective: to assess the OSH KAP levels among staff at the Mukah Divisional Health Office. To achieve this objective, the study adopted a cross-sectional survey design involving personnel from all units within the health office, including the Mother and Child Health Clinic (KKIA), which is housed in the same facility.

The study was conducted over six months, from March to August 2025, using both inductive and deductive research approaches. Initially, an inductive approach was applied to identify patterns and potential gaps in OSH-related KAP within this specific context, where limited prior research existed. Subsequently, a deductive approach was used to interpret the findings about existing literature, even when such literature was not exclusive to healthcare settings.

A non-probability convenience sampling method was employed to select participants based on their availability during the data collection phase. A total of 114 staff members participated in the study, representing various units within the office. The required sample size was calculated using the Raosoft sample size calculator with a 5% margin of error and a 95% confidence level, yielding a minimum target of 102 responses. To account for incomplete or unusable responses, 12 additional questionnaires were distributed.

Primary data were collected between 6 and 21 March 2025 through structured, self-administered questionnaires distributed via Google Forms, WhatsApp, and printed hard copies. Additionally, informal interviews were conducted with selected staff to gather deeper insights into OSH implementation at the workplace. Secondary data were obtained from relevant sources such as the Ministry of Health's Annual Report 2023, reports from the Environmental Health and Safety (KPAS) Unit, and previous research studies, including those by Kumar et al. (2022).

The main instrument for this study was a structured questionnaire, which was reviewed and validated by the supervising academic. The questionnaire was adapted from two established KAP studies (Zeehana et al., 2021; Lugah et al., 2010) and was made available in both Malay and English. It comprised two sections: Part A focused on demographic data—covering education level, years of experience, participation in OSH training, and incident experience—while Part B contained 30 closed-ended questions (Yes/No format) evenly distributed across three domains: knowledge, awareness, and practice. Informal interviews were guided by a checklist designed to explore past incidents and current OSH practices, providing supplementary qualitative data.

Data analysis was conducted using Google Sheets. Responses collected through Google Forms were automatically exported for organisation and statistical analysis. Descriptive statistics, primarily percentages, were used to assess response distributions and were visually presented in pie charts. The KAP scores were then categorised using established thresholds. For knowledge, scores of  $\geq 85\%$  were considered high,  $60\%–84\%$  as medium, and  $\leq 59\%$  as low (Paul et al., 2022). Awareness levels were categorised as high ( $\geq 70\%$ ), moderate ( $50\%–69\%$ ), and low ( $\leq 49\%$ ) (Chebet et al., 2019). Practice levels were classified as good ( $\geq 70\%$ ) or poor ( $\leq 69\%$ ) based on adherence to safety practices (Paul et al., 2022).

### 4.0 Findings

#### 4.1 Socio-Demographic of Respondents

Data on the socio-demographic characteristics were collected from 114 staff members of the Mukah Divisional Health Office, representing various units. These are illustrated in Figures 1 (i) to 1 (iv). Figure 1 (i) presents the distribution of respondents based on their highest level of education, which includes Sijil Pelajaran Malaysia (SPM), Certificate, Diploma, Degree, Master's, and PhD. Most respondents—43.9% (n = 50)—held a Diploma qualification. Respondents with Certificate and SPM qualifications accounted for 20.2% each (n = 23). Meanwhile, 14.9% (n = 17) of the respondents held a degree. Only one respondent, representing 0.9%, held a master's degree, while none of the participants held a PhD.

Figure 1 (ii) illustrates the respondents' length of service at the Mukah Divisional Health Office, categorized into five groups: ≤5 years, 6–10 years, 11–15 years, 16–20 years, and ≥21 years. The highest proportion, 30.7% (n = 35), had less than five years of service. The smallest group, 8.8% (n = 10), comprised staff with over 21 years of service. Additionally, 14.0% (n = 16) had worked for 6–10 years, 23.7% (n = 27) for 11–15 years, and 22.8% (n = 26) for 16–20 years. Figure 1 (iii) shows the attendance of respondents at Occupational Safety and Health (OSH)-related training courses. A total of 69.3% (n = 79) had never attended any OSH training, while 30.7% (n = 35) reported having participated in such training. Finally, Figure 1 (iv) highlights the respondents' experience with occupational safety and health-related incidents in the workplace. The responses were nearly evenly distributed, with 52.6% (n = 60) reporting no experience with such incidents, and 47.4% (n = 54) having experienced at least one OSH-related incident.

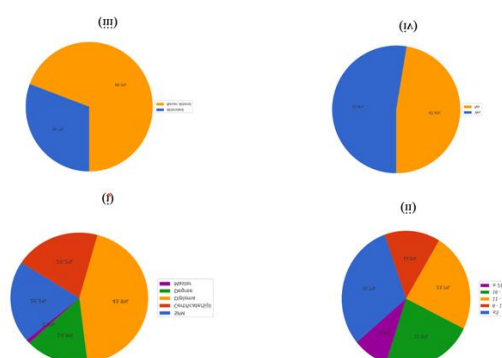


Figure 1: Socio-Demographic Data (i) Respondents' education level; (ii) Respondents' length of service; (iii) Attended to Occupational Health and Safety training-related course; (iv) Experienced workplace incidents related to Occupational Safety and Health.

#### 4.2 Level of Knowledge

Table 1 presents the findings related to the knowledge of Occupational Safety and Health (OSH) among staff at the Mukah Divisional Health Office. The results indicate a generally high level of knowledge across most items. Most respondents (n = 108; 94.74%) correctly identified that occupational hazards include biological, chemical, ergonomic, and psychosocial risks that can compromise workplace safety. Only a small number (n = 6; 5.26%) answered this question incorrectly. An identical distribution of responses was observed for the question regarding the applicability of the Occupational Safety and Health Act (OSHA), with 94.74% recognizing that OSHA applies to all types of workplaces, including healthcare facilities and laboratories.

In relation to Personal Protective Equipment (PPE), 78 respondents (68.42%) correctly disagreed with the false statement that PPE is recommended but not mandatory during hazardous tasks. However, a notable portion (n = 36; 31.58%) answered this item incorrectly. Despite this, nearly all respondents (n = 111; 97.37%) correctly acknowledged that the proper use of PPE significantly reduces the risk of injuries and exposure to occupational hazards, while only 3 respondents (2.63%) answered incorrectly. About near-miss incidents, 95 respondents (83.33%) disagreed with the incorrect notion that reporting such incidents is unnecessary. Nevertheless, 19 respondents (16.67%) misunderstood the importance of near-miss reporting. Moreover, 110 participants (96.49%) correctly recognized that near-miss events serve as early indicators of potential safety risks, while only 4 respondents (3.51%) did not. Concerning work hours and mental health, 110 respondents (96.49%) agreed that prolonged working hours and high job demands can negatively affect the mental well-being of public health workers. A small minority (n = 4; 3.51%) disagreed. Similarly, 111 respondents (97.37%) correctly disagreed with the statement that taking breaks during working hours is unnecessary, indicating strong

Table 1: Respondents' Knowledge on Occupational Safety and Health (OSH) Among Mukah Divisional Health Office Staff

Questions	Responses, n (%)	
	No. of correct answers	No. of incorrect answers
1. Occupational hazards consist of biological, chemical, ergonomic, and psychosocial risks which can impact workplace safety.	108 (94.74%)	6 (5.26%)

2.	The Occupational Safety and Health Act applies to all workplaces, including healthcare and laboratories, as they involve various occupational hazards.	108 (94.74%)	6 (5.26%)
3.	Personal protective equipment (PPE) is recommended but not mandatory during risky work.	78 (68.42%)	36 (31.58%)
4.	Proper use of personal protective equipment (PPE) reduces the risk of workplace injuries and exposure to occupational hazards.	111 (97.37%)	3 (2.63%)
5.	Reporting near-miss accidents is unnecessary as it is just a minor accident.	95 (83.33%)	19 (16.67%)
6.	Near-miss incidents serve as early warning signs of potential safety risks in the workplace	110 (96.49%)	4 (3.51%)
7.	Long working hours and high job demands can contribute to mental health issues among public health workers.	110 (96.49%)	4 (3.51%)
8.	Taking breaks during working hours is unnecessary and does not affect employee performance or well-being.	111 (97.37%)	3 (2.63%)
9.	Knowing the appropriate procedures to follow when identifying a potential hazard in the workplace has no impact on maintaining a safe working environment.	80 (70.18%)	34 (29.82%)
10.	Attending fire safety training and participating in regular fire drills are unnecessary, as knowing the proper procedures during a fire outbreak does not significantly impact workplace safety.	104 (80.70%)	10 (19.30%)

awareness of the importance of rest in maintaining health and safety; only 3 respondents (2.63%) answered incorrectly. Lastly, in terms of safety procedures and training, 80 respondents (70.18%) correctly disagreed with the claim that knowing proper procedures when identifying a potential hazard has no impact on workplace safety. However, 34 respondents (29.82%) answered this item incorrectly, indicating some knowledge gaps. Additionally, 104 respondents (80.70%) disagreed with the idea that fire safety training and drills are unnecessary, while 10 respondents (19.30%) provided incorrect responses. These findings suggest that while the overall knowledge level regarding OSH is high, specific areas such as mandatory PPE usage and safety procedures could benefit from further targeted education and training.

#### 4.2 Level of Awareness

Table 2 presents the respondents' awareness levels regarding Occupational Safety and Health (OSH). The results reflect a generally high level of awareness across most aspects assessed in this study. A large majority of respondents (n = 112; 98.25%) acknowledged that occupational hazards should be taken seriously and addressed promptly in the workplace. Similarly, 110 respondents (96.49%) agreed that such hazards cannot be ignored, while only 4 respondents (3.51%) disagreed with this statement. These findings suggest that most staff possessed a sound understanding of the risks and potential consequences associated with workplace hazards.

In terms of Personal Protective Equipment (PPE), 111 respondents (97.37%) correctly indicated that the use of PPE is essential in reducing exposure to occupational hazards, with only 3 respondents (2.63%) demonstrating a lack of awareness in this regard. However, awareness regarding proper PPE handling was somewhat lower—93 respondents (81.58%) were aware that PPE must be properly worn, removed, and disposed of, while 21 respondents (18.42%) lacked awareness on this issue. When asked about the implications of wearing inappropriate PPE, 85 respondents (74.56%) agreed that improper use can result in injuries or near-miss incidents. In contrast, 29 respondents (25.44%) did not recognize this risk, indicating a potential knowledge gap. Awareness related to near-miss incidents was also moderate; only 61 respondents (53.51%) believed such incidents are preventable, suggesting that nearly half may not fully appreciate the importance of addressing and reporting near-miss events. Workload and fatigue were also assessed. A total of 94 respondents (82.46%) agreed that working more than nine hours without breaks could lead to overexertion and negatively affect job performance.

Table 2: Respondents' Awareness of Occupational Safety and Health (OSH) Among Mukah Divisional Health Office Staff

Questions	Responses, n (%)	
	No. of correct answers	No. of incorrect answers
1. I am aware that occupational hazards should be taken seriously and given prompt attention in the workplace.	112 (98.25)	2 (1.75)
2. I am aware that occupational hazards do not need to be taken seriously and can be ignored in the workplace without consequences.	110 (96.49)	4 (3.51)
3. I am aware that personal protective equipment (PPE) is necessary to reduce the risk of exposure to occupational hazards.	111 (97.3)	3 (2.7)

4.	I am aware that PPE can be worn, removed, and disposed of improperly.	93 (81.58)	21 (18.42)
5.	I am aware that wearing PPE can lead to injuries or near-miss incidents in my workplace.	85 (74.56)	29 (25.44)
6.	I am aware that near-miss incidents happen randomly and cannot be prevented.	61 (53.51)	53 (46.49)
7.	I am aware that working more than 9 hours each day without taking a break does not cause overworking or lead to any work performance issues.	94 (82.46)	20 (17.54)
8.	I am aware that insufficient rest breaks during long working hours can lead to fatigue and decreased productivity.	107 (93.02)	7 (6.98)
9.	I am aware that a coworker needs to be reminded and reported if he/she is not following safety procedures.	109 (93.86)	5 (6.14)
10.	I am aware that workplace safety training is essential for all workers, regardless of employment duration.	111 (97.3)	3 (2.7)

Furthermore, 107 respondents (93.02%) acknowledged that a lack of rest breaks contributes to fatigue and decreased productivity, reflecting strong awareness of work-rest balance as a factor in maintaining occupational health. Additionally, 109 respondents (93.86%) agreed that coworkers who fail to comply with safety procedures should be reminded or reported, highlighting a strong sense of shared responsibility for workplace safety. Lastly, 111 respondents (97.37%) affirmed that safety training is essential for all employees, regardless of their length of service, while only 3 respondents (2.63%) disagreed. Overall, the findings reveal that while general awareness of occupational safety and health is high among staff, specific areas such as near-miss incident prevention and proper PPE handling still require improvement through targeted awareness initiatives and training.

#### 4.3 Level of Practices

Table 3 outlines the Occupational Safety and Health (OSH) practices reported by staff at the Mukah Divisional Health Office. Overall, the findings indicate a strong adherence to safe work practices among most respondents. Nearly all respondents (n = 113; 99.12%) reported consistently practising caution to avoid occupational hazards in the workplace, with only one respondent (0.88%) indicating otherwise. Similarly, 109 respondents (95.61%) rejected the incorrect belief that no precautions are necessary if a hazard does not pose an immediate threat to their safety, while 5 respondents (4.39%) answered this item incorrectly.

In terms of Personal Protective Equipment (PPE), 112 respondents (98.25%) reported that they correctly wear, remove, and dispose of PPE. However, slightly fewer respondents (n = 107; 93.86%) demonstrated knowledge and adherence to proper PPE fit and the necessity of fit testing, while 7 respondents (6.14%) showed gaps in this aspect. Regarding incident reporting, 108 respondents (94.74%) agreed that all workplace injuries—including near-miss incidents—should be reported and documented to support prevention strategies. Conversely, 6 respondents (5.26%) disagreed. Additionally, 105 respondents (92.11%) disagreed with the notion that near-miss incidents are too minor to report, while 9 respondents (7.89%) incorrectly considered them unimportant.

Work and rest practices received slightly lower levels of agreement. A total of 97 respondents (85.09%) disagreed with the idea of working continuously for more than eight hours without a proper one-hour lunch break, while 17 respondents (14.91%) failed to recognize the importance of adequate rest. Encouragingly, 106 respondents (92.98%) reported that they take regular breaks to reduce fatigue and stress, with only 8 respondents (7.02%) indicating otherwise. Emergency preparedness also showed strong compliance.

Table 4.3 : Respondents' Practice on Occupational Safety and Health (OSH) Among Mukah Divisional Health Office Staff

Questions		Responses, n (%)	
		No. of correct answers	No. of incorrect answers
1.	I practice a careful attitude to avoid any kind of occupational hazards in the workplace.	113 (99.12)	1 (0.88)
2.	I do not take any precautions against occupational hazards in the workplace, as they do not affect my safety.	109 (95.61)	5 (4.39)
3.	I properly wear, remove and dispose of PPE in my workplace. (Example : the usage of face mask during COVID-19 outbreak)	112 (98.25)	2 (1.75)
4.	I do not need to wear properly fitted personal protective equipment (PPE) or undergo a fit test, as size does not affect its effectiveness.	107 (93.86)	7 (6.14)
5.	I immediately report and document workplace injuries or incidents for proper action and prevention, even near-miss incidents.	108 (94.74)	6 (5.26)

6.	I do not take any action after experiencing a near-miss accident, as it is just a minor incident.	105 (92.11)	9 (7.89)
7.	I work more than 8 hours continuously each day without a 1 hour lunch break.	97 (85.09)	17 (14.91)
8.	I take regular breaks to prevent fatigue and stress during working hours.	106 (92.98)	8 (7.02)
9.	I do not participate in workplace emergency drills and training, as they are unnecessary.	107 (93.86)	7 (6.14)
10.	I adhere to occupational safety and health procedures and follow all safety guidelines in my daily tasks.	108 (94.74)	6 (5.26)

A total of 107 respondents (93.86%) disagreed with the statement that emergency drills and training are unnecessary, whereas 7 respondents (6.14%) failed to recognize the importance of such measures. Lastly, most respondents (n = 108; 94.74%) reported adherence to workplace safety protocols and OSH guidelines in their daily work routines, while only 6 respondents (5.26%) did not. Overall, these findings suggest a high level of OSH practice among the staff, particularly in hazard prevention, PPE usage, and protocol compliance. However, areas such as consistent reporting of near-miss incidents and the importance of adequate rest could benefit from further reinforcement through training and awareness programs.

## 5.0 Discussion

This study found that most respondents (94.74%) demonstrated a clear understanding of the meaning and impact of occupational hazards, indicating a high level of basic OSH knowledge. This is consistent with the findings of Odonkar and Sallar (2024), in which 95.9% of 350 respondents exhibited a strong understanding of occupational hazards. Conversely, Agbana et al. (2016), in a study involving sawmill workers in Kwara State, Nigeria, reported that 61.7% of workers had poor knowledge of occupational hazards and lacked familiarity with core OSH principles. This deficiency was attributed to informal apprenticeship-based training, where workers relied solely on their mentors without further efforts to understand workplace hazards—particularly in cases involving wood dust exposure, where knowledge gaps were evident.

Regarding PPE, the present study revealed that respondents had a moderate level of knowledge (82.89%) concerning its correct use. While most were aware that PPE can reduce workplace injuries, some lacked a detailed understanding of its necessity during high-risk tasks. This finding is significant, considering that improper or non-use of PPE contributes to 12–14% of disabling injuries, even though proper PPE use could prevent up to 37.6% of occupational injuries (Kursunoglu et al., 2022). Similarly, Yusuf et al. (2023) found that while 93.7% of healthcare workers had access to adequate PPE during the COVID-19 pandemic, only 82.1% used it consistently. These findings underscore the importance of structured and clear training to ensure all employees know when and how to use PPE effectively.

Liu et al. (2020) emphasized the importance of safety training and procedural knowledge as mediators of safe workplace behavior and accident prevention. However, this study found that 29.82% of respondents did not believe that knowledge of appropriate procedures contributes to maintaining a safe work environment. This reflects a critical misunderstanding—failing to recognize how small procedural lapses may escalate into serious incidents. Notably, only 35 out of 114 respondents had attended formal OSH training. Trained respondents scored marginally higher (91.43%) than untrained ones (87.97%) on knowledge-based safety questions. This aligns with Nkomo et al. (2018), who found that even among trained forestry workers, 79% still failed to grasp essential safety procedures, resulting in persistent high injury rates in hazardous industries like construction and mining. Therefore, safety training must go beyond passive attendance; it must ensure comprehension and retention of critical procedures to effectively reduce risk.

In terms of awareness, the study found high levels of understanding related to general OSH principles (97.37%), appropriate PPE use (89.48%), safe work durations (88.16%), and the importance of adhering to safety procedures (96.49%). However, awareness regarding near-miss incidents was only moderate. This finding reflects a critical area of concern, as many workers appear to overlook the importance of reporting these incidents. Roy and Dutta (2024) found that although only 3% of their respondents lacked awareness about near-miss reporting, 81% believed such events were not worth reporting because no major injuries had occurred. This mindset is dangerous, as near-miss incidents often signal underlying hazards that, if left unaddressed, may lead to serious or even fatal accidents. Continuous education is needed to instill the importance of near-miss reporting, viewing every incident—regardless of severity—as an opportunity for preventive learning and safety improvement.

This study also highlighted the influence of socio-demographic factors on OSH KAP levels. Respondents with higher educational attainment consistently demonstrated greater knowledge, awareness, and safety practices. This trend supports findings by Nalugya et al. (2022), who observed that workers with higher education levels in Uganda had better understanding of PPE use, stronger safety attitudes, and greater awareness of hazard prevention. Interestingly, staff with less than 10 years of work experience at the Mukah Divisional Health Office had slightly higher knowledge scores (88.63%) than those with over 10 years of experience (86.98%). A similar trend was reported by Onowhakpor et al. (2017), who found that sawmill workers with fewer than 10 years of experience showed better OSH knowledge than their more experienced counterparts. This could be attributed to more recent hires receiving updated OSH training

aligned with current safety standards and guidelines. While some literature, including Jaafar (2022) and Zolkufli and Faiz (2012), indicates that longer service correlates with increased OSH awareness, this study suggests that recency of training may outweigh duration of experience in some contexts.

Participants who had attended OSH training showed higher overall KAP levels than those who had not. However, it was notable that awareness levels among trained employees were not significantly higher, suggesting that while they knew *what* to do and *how* to do it, their understanding of the risks and implications may not be as strong as expected. Conversely, untrained employees demonstrated relatively high levels of practice despite lower knowledge and awareness. This might result from workplace norms, informal guidance from experienced colleagues, or accumulated on-the-job learning. Regardless, both groups would benefit from continuous and structured training to reinforce not only knowledge and practice but also a deeper understanding of occupational risks.

The role of OSH training in building a strong safety culture is well documented. Kabiesz (2024) emphasizes that safety training fosters behavioral change and risk recognition. Eiris et al. (2020) further highlight that training serves to reduce accident rates by promoting safe habits and increasing hazard awareness. The present study revealed that individuals who had not attended OSH training experienced more workplace incidents than those who had. While some untrained individuals reported never experiencing an incident, this does not negate the concern that lack of training leaves critical knowledge gaps. Therefore, periodic and compulsory training is essential to ensure consistent KAP levels across all employees, regardless of prior incident exposure. Laberge et al. (2014) also stress that ongoing education and regular reminders are vital for sustaining effective preventive measures in the long term.

The Mukah study reports an overall high level of OSH knowledge (e.g., 94.7% correctly identifying core occupational hazards) alongside high overall awareness and generally good self-reported practices, yet important, localized gaps remain—most notably in correct PPE usage details, near-miss recognition/reporting, and limited participation in formal OSH training (69.3% never attended training). These mixed results mirror a pattern in the literature: some studies (Odonkor & Sallar, 2024) likewise report high general knowledge among healthcare workers, while others (Agbana et al., 2020) show much poorer knowledge in more informal work settings. The contrast highlights that high aggregate knowledge scores do not automatically translate into uniformly safe behaviour or robust reporting systems; the Mukah data explicitly show a partial decoupling where the knowledge is high, but awareness about near-miss preventability and detailed PPE handling is weaker, and underreporting appears severe (one formally reported incident in five years).

Theoretically, these findings problematize any simplistic linear  $K \rightarrow A \rightarrow P$  cascade implicit in many KAP applications. The Mukah evidence supports a more nuanced model in which (a) knowledge can be necessary but not sufficient, (b) awareness has multiple dimensions (general risk recognition vs. procedural/near-miss sensitivity), and (c) practice may be shaped as much by workplace norms, informal on-the-job learning, and perceived reporting costs as by prior knowledge. In short, the KAP framework as applied here would benefit from integration with constructs from safety-culture and behavioural theories (e.g., safety climate, perceived behavioural control, social norms, organizational support). The study's observation that untrained staff sometimes report good practice (possibly due to peer norms) and that trained staff do not always show markedly higher awareness implies feedback loops, social modelling, and organizational constraints mediate the  $K \rightarrow A$  and  $A \rightarrow P$  links rather than a one-way flow.

## 6.0 Conclusion and Recommendation

Occupational Safety and Health (OSH) aims to prevent work-related injuries and illnesses while promoting the overall well-being of employees (International Labour Organization, 2024). Given the diverse range of job functions at the Mukah Divisional Health Office, staff members are inherently exposed to a variety of occupational hazards. Despite existing OSH initiatives, risks persist—largely due to inconsistent implementation of safety practices, inadequate awareness, and knowledge gaps among staff. Compounding the concern is the office's unusually low rate of reported workplace incidents, which may reflect systemic underreporting rather than actual safety.

This study found that the overall level of OSH knowledge among the staff is relatively high. Respondents demonstrated a strong understanding of core OSH principles, near-miss incidents, and the effects of extended working hours. However, gaps were noted in understanding the proper use of personal protective equipment (PPE) and the significance of attending formal safety training. To improve staff knowledge, the Occupational Safety and Health Unit (KPAS) should organize regular safety training and refresher sessions tailored to all roles and experience levels. These sessions should cover hazard identification, appropriate response procedures, and correct PPE usage—particularly in high-risk tasks. Similarly, the level of OSH awareness was found to be high among respondents. Most staff recognized the protective role of PPE, the importance of regulated working hours, and the need to follow safety procedures. They also acknowledged the value of attending safety training. Nonetheless, a moderate level of awareness was observed regarding near-miss incidents, particularly in reporting and prevention. To address this, the KPAS unit should implement targeted awareness campaigns and focused workshops on near-miss incidents. These should include education on formal reporting mechanisms, encourage a blame-free reporting culture, and ensure all staff understand how to document and respond to such incidents effectively.

In terms of practice, most staff demonstrated good OSH behaviour in their daily work. However, the study suggests that some of these practices may not be grounded in a deep understanding or sustained awareness, which raises concerns about their long-term consistency—particularly under high-pressure or emergencies. To strengthen safety practices, the KPAS unit is encouraged to conduct regular inspections, informal surveys, and performance reviews to monitor compliance and identify areas requiring improvement. This proactive approach will reinforce a culture of safety, promote accountability, and contribute to creating a safer and healthier work environment.

The Mukah study's main methodological constraints were its cross-sectional design, single-site convenience sampling ( $n = 114$ ), reliance on self-reported yes/no items (susceptible to social-desirability and ceiling effects), and descriptive analyses only — limiting causal inference and generalizability. Because the instrument uses dichotomous items and lacks multi-item psychometric scales, it may



overstate “good practice” relative to observed behaviour; likewise, descriptive statistics cannot test mediation (e.g., whether safety climate mediates K→P) or moderation (e.g., training × experience).

Addressing these limitations, recommendation is a programme of future research: (a) mixed-methods longitudinal studies to observe knowledge retention and behaviour change over time; (b) use of validated multi-item Likert scales and observational measures (PPE audits, logged near-misses) to reduce bias; (c) application of structural equation modelling or path analysis to test whether knowledge influences practice directly or via mediators such as awareness, perceived behavioural control, and safety climate; (d) pragmatic intervention trials (e.g., stepped-wedge or cluster randomized designs) comparing knowledge-only training with experiential/procedural training and with system-level interventions (anonymous reporting platforms, leadership safety walk-rounds); and (e) economic evaluations of interventions to guide resource allocation. These directions explicitly bring KAP research into contact with behaviour-change and safety-systems literatures (TPB, COM-B, safety climate), enabling more precise causal inference and actionable interventions.

KPAS is encouraged to conduct regular inspections and informal surveys as a proactive mechanism for strengthening OSH compliance, identifying emerging risks, and reinforcing accountability across all operational units. Regular inspections, whether scheduled or surprise audits, will allow KPAS to directly observe workplace behaviours, PPE compliance, equipment condition, housekeeping standards and adherence to hazard-control procedures, providing objective evidence that complements self-reported KAP data. These inspections also create visible managerial presence, which research shows can strengthen safety climate and signal that OSH is a shared institutional priority rather than a procedural formality.

In parallel, informal surveys—short pulse checks, on-the-spot questionnaires, brief interviews or digital micro-surveys—enable KPAS to capture real-time feedback on staff perceptions of risk, barriers to safe practice, availability of PPE, training needs, and comfort levels with incident reporting. Informal surveys are particularly useful for uncovering hidden problems such as underreporting, near-misses not captured in official logs, or procedural gaps that staff may hesitate to disclose in formal settings. When conducted routinely, both inspections and informal surveys create a continuous feedback loop that helps KPAS detect early warning signs, tailor interventions to actual frontline needs, and ensure that corrective actions are implemented and sustained. Most importantly, consistent monitoring reinforces accountability: units understand that safety performance is being observed, discussed and acted upon, which encourages greater adherence to OSH protocols, fosters collective responsibility, and gradually nurtures a culture in which safe behaviour becomes the default norm rather than an enforced requirement.

In summary, the overall level of OSH-related Knowledge, Awareness, and Practices (KAP) among Mukah Divisional Health Office staff is satisfactory. While general safety principles appear well understood, targeted improvements in areas such as near-miss reporting, PPE application in high-risk scenarios, and procedural adherence are essential. Through focused interventions, continuous training, and active monitoring, the organization can further enhance its OSH performance and build a more resilient and safety-conscious workforce.

## Acknowledgements

The authors would like to acknowledge the assistance of Mr. Tamizie Bin Sapian for this research. The cooperation of the Mukah Divisional Health Office staff is also appreciated

## Paper Contribution to Related Field of Study

This study contributes to the field of Occupational Safety and Health (OSH) by providing specific insights into the knowledge, awareness, and practices (KAP) of healthcare staff at the Mukah Divisional Health Office. It highlights gaps in PPE use and near-miss reporting, areas often overlooked in non-hospital healthcare settings. The findings support the need for targeted OSH training and improved reporting systems, offering practical recommendations to strengthen workplace safety and prevent underreporting of incidents.

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