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**ORIGINAL ARTICLE**

# Determinants of Safe Behavior among Clinical Pathology Assistants at Dr. Soebandi Regional Hospital Jember, Indonesia

**Puspita Octaviani, Ragil Ismi Hartanti, Reny Indrayani**

Public Health Study Program, Faculty of Public Health, University of Jember, Jember, Indonesia
Jl. Kalimantan Kampus Bumi Tegal No.I/ 93, Krajan Timur, Boto, Sumbersari, Jember, East Java 68121, Indonesia

## ABSTRACT

**Introduction:** Every workplace has potential hazards that can threaten work safety, including clinical pathology laboratories. Work accidents in clinical pathology at Dr. Soebandi Regional Hospital Jember have decreased every year. This study aims to examine the determinants of safety behavior among clinical pathology assistants at Dr. Soebandi Regional Hospital, Jember. **Methods:** This research was a quantitative descriptive study with a cross-sectional approach. The study's respondents were 32 clinical pathology assistants. We collected data using a questionnaire. We analyzed this research using frequency, crosstab, and logistic regression tests. **Results:** The majority of clinical pathology assistants were under 40 years old, had completed occupational health and safety training, possessed competencies suitable for their work, maintained a positive attitude, and demonstrated high motivation at work. Almost all respondents stated that supervision was good, they had good knowledge, and their most recent level of education was Diploma-III. Most clinical pathology assistants behave safely. Clinical pathology assistants who are under 40 years old, have completed occupational health and safety training, exhibit competence, a positive attitude, and high motivation, report good supervision, possess good knowledge, and hold the latest Diploma-III education level are more likely to behave safely. **Conclusion:** Several clinical pathology assistants have demonstrated safe behavior while working in the clinical pathology laboratory. Several factors, including superior supervision and reasonable supervision efforts in the clinical pathology laboratory, contribute to the safe behavior of clinical pathology assistants.

**Keywords:** clinical pathology assistants, laboratory, safety behavior

**Corresponding Author:**
Ragil Ismi Hartanti
Email: ragil.ismi@unej.ac.id
Telephone: +628562961422

## INTRODUCTION

According to Regulation No. 5 of 2021 from the Ministry of Manpower of the Republic of Indonesia, work accidents include incidents that take place during the performance of professional duties. This includes illnesses contracted while commuting to and from the workplace. Workplace accidents can arise from either unsafe practices or hazardous surroundings (Sultan, 2019). In 2018, the Social Security Administrator for Employment received reports of a total of 173,105 work-related accidents (Social Security Administrator for Employment, 2019). Workplace accidents accounted for 114,000 incidents in 2019. In 2020, the number of workplace accidents increased. According to the Ministry of Manpower (2021), there were 177,000 work-related accidents in 2020. There were 179 cases of work-related illnesses, of which COVID-19 accounted for 65%, and a total of 82,000 work-related accidents from September 2021 until its conclusion (Dinas Tenaga Kerja dan Transmigrasi Provinsi DIY, 2022).

Unsafe behavior primarily causes workplace accidents. Safe behavior can serve as a preventive measure against unsafe actions. According to the US Bureau of Labor Statistics, the health sector has one of the highest accident rates of any industry (Berau of Labor Statistics, 2020). Numerous studies in the health sector have shed light on the implementation of safe practices in hospital settings. Fitriani, Jafar and Gobel (2020) conducted research that elucidates that nurses adhered to safe practices, including the utilization of personal protective equipment (PPE),

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adherence to hospital regulations and standard operating procedures, and meticulous work. In another study, Sunanryani, Suharni and Baharuddin (2023) explain that nurses at La Temmamala Sopeng Regional Hospital practice safe behavior by donning personal protective equipment (PPE) while on duty, adhering to regulations, securing equipment to ensure proper operation, repairing damaged work equipment, and employing tools in accordance with established procedures.

Laboratory areas are high-risk for workplace accidents in hospitals. Chemicals, specimens, and improperly used laboratory equipment are just a few of the hazards that exist in the laboratory environment (Mardiana and Rahayu, 2017). In the clinical pathology laboratory, three hazards pose the greatest risk: needle pricks, splashes with patient samples and reagents, and needle pricks themselves (Satrio and Fuadi, 2020).

Thirteen hospitals make up Jember Regency (Badan Pusat Statistik Kabupaten Jember, 2021). Dr. Soebandi Regional Hospital Jember, a type B general hospital, serves as a regional referral facility for the districts of Bondowoso, Lumajang, Banyuwangi, and Jember. Workplace accidents occurred on multiple occasions within Dr. Soebandi Regional Hospital Jember, including the clinical pathology laboratory. According to the findings from the documentation and reporting of occupational incidents at Dr. Soebandi Regional Hospital Jember, a total of 24 such incidents occurred between 2016 and 2021. Fires, punctures caused by hazardous materials, splashes of infectious substances, and equipment overload are all examples of occupational hazards that can occur in a clinical pathology laboratory and endanger the safety of clinical pathology assistants. From 2016 to the end of 2022, work-related accidents decreased, and the clinical pathology laboratory will no longer record any such incidents.

Based on the presented data, the research concludes that clinical pathology assistants conduct themselves in a safe manner in order to minimize or prevent workplace accidents. Examining the determinants of safety behavior among clinical pathology assistants at Dr. Soebandi Regional Hospital Jember.

## METHODS

This research was a quantitative descriptive study with a cross-sectional approach. The study commenced in June 2023. The population of this study was all workers in the clinical pathology laboratory at Dr. Soebandi Regional Hospital Jember, East Java, Indonesia, as many as 32 workers, with criteria of workers having contact with chemicals in the clinical pathology laboratory, participating in lifting and transporting samples or equipment in the laboratory, contact with medical waste, participating in the cleaning and sterilization process of equipment that has been used in the clinical pathology laboratory, and contact with patient samples both before, during, and after sample collection (phlebotomy). The sampling technique in this study used total sampling; as many as 32 respondents were divided into three doctors, one general assistant, one cleaning service, four administrators, and 23 medical laboratory analysts.

This study used a questionnaire to gather information on age, occupational health and safety training, competence, attitude, motivation, supervision, knowledge, and most recent level of education. Annisa (2019) used a safety behavior questionnaire that consisted of 10 statements. Researchers conducted validity and reliability tests for the safety behavior questionnaire in the Clinical Pathology Laboratory of the Paru Hospital Jember with ten workers, and the results were declared valid and reliable (the reproducibility coefficient results obtained being 0.97 and the scalability coefficient outcomes being 0.67). The occupational health and safety training and competency questionnaire consist of one question. Sudrajat (2017) conducted research and declared the attitude, motivation, and knowledge questionnaires valid. The attitude questionnaire has eight statements, the motivation questionnaire has 19 statements, and the knowledge questionnaire has ten questions. Annisa (2019) conducted research and declared the supervision questionnaire valid. The supervision questionnaire consists of 4 statements. We assigned a score to each statement on the safety behavior, attitude, motivation, and supervision questionnaire, added it to the total score, and then categorized it. The knowledge questionnaire also assesses questions based on correct answers.

This study divided the category of safety behavior into two groups: safety behavior with a total score of 0 and unsafe behavior with a total score of less than 1. We divided the attitude assessment criteria into two categories: positive (total score: 8-20) and negative (total score: 21-32). We divided the motivation categories into three tiers: low (total score: 19-37), moderate (total score: 38-57), and

high (total score: 58-76). Meanwhile, we divided the supervision assessment criteria into two categories: good (total score: 4-12) and bad (total score: 13-20). There were three categories of knowledge, namely poor with a total score ≤3, sufficient (total score 4-6), and excellent (total score 7-10). Dr. Soebandi Regional Hospital Jember, Indonesia, provided the supporting data for this study, which included the number of employees, work accident cases, work accident reporting flow, and work accident handling. We analyzed this research using frequency, crosstab, and logistic regression tests. Tables and narration will visually represent the analyzed data. We issued the ethical license certificate number 405/KEPK/FKM-UNEJ/V/2023 for this study.

## RESULTS

### Determinants of Safety Behavior among Clinical Pathology Assistants at Dr. Soebandi Regional Hospital Jember, Indonesia

Table 1 presents the following information: age, recent level of education, occupational health and safety training, competence, attitude, motivation, supervision, and knowledge. According to the findings of a questionnaire administered to 32 clinical pathology assistants, the frequency distribution data presented below was compiled.

Table 1 shows that the majority of clinical pathology assistants, specifically 17 individuals (53.1%), were under 40 years old. The hospital provided occupational health and safety training to 25 clinical pathology assistants, accounting for 78.1% of the total. Approximately 81.3% of clinical pathology assistants, as many as 26 people, have competencies appropriate to their type of work. Of the 32 clinical pathology assistants, 31 have a positive attitude (96.9%); the majority, as many as 18 people (56.3%), have high motivation. The majority of respondents, specifically 29 individuals (90.6%), expressed satisfaction with their supervision. Only 22 out of 32 people had good knowledge (68.7%). Finally, 18 out of 32 clinical pathology assistants with last education were Diploma-III.

### Safety Behavior among Clinical Pathology Assistants at Dr. Soebandi Regional Hospital Jember, Indonesia

Table 2 contains the frequency distribution of safety behavior in clinical pathology assistants. The table shows that 11 people (34.4%) behaved safely. However, there were still 21 people (65.6%) who acted unsafely.

### Description of Safety Behavior based on Determinant among Clinical Pathology Assistants at Dr. Soebandi Regional Hospital Jember, Indonesia

Table 3, shows that Clinical pathology assistants aged ≥40 years behave more safely than those aged <40 years. Clinical pathology assistants who have attended occupational health and safety training behave more safely. Clinical pathology assistants who are competent in their field have a greater

**Table 1.** Distribution of Safety Behavior Determinants

| Safety Behavior Determinant | Frequency (n) | Percentage (%) |
|---|---|---|
| **Age** | | |
| <40 years | 17 | 53.1 |
| ≥40 years | 15 | 46.9 |
| **Health and Safety Training** | | |
| Yes | 25 | 78.1 |
| No | 7 | 21.9 |
| **Competence** | | |
| Yes | 26 | 81.3 |
| No | 6 | 18.7 |
| **Attitude** | | |
| Positive | 31 | 96.9 |
| Negative | 1 | 3.1 |
| **Motivation** | | |
| High | 18 | 56.3 |
| Moderate | 14 | 43.7 |
| Low | 0 | 0 |
| **Supervision** | | |
| Good | 29 | 90.6 |
| Bad | 3 | 9.4 |
| **Knowledge** | | |
| Good | 22 | 68.7 |
| Sufficient | 10 | 31.3 |
| Poor | 0 | 0.0 |
| **Education** | | |
| Senior High School/ Equivalent | 5 | 15.6 |
| Diploma-III | 18 | 56.3 |
| Bachelor/Equivalent | 6 | 18.7 |
| Master | 3 | 9.4 |
| **Total** | 32 | 100.0 |

tendency to behave safely than those who do not have competence. Clinical pathology assistants with a positive attitude are safer than employees with a negative attitude. High-motivation clinical pathology assistants reported that their supervision was effective, which contributed to their safer behavior. Clinical pathology assistants with good knowledge behave safely. Clinical pathology assistants with the most recent Diploma-III education level have a greater tendency to behave safely.

**Table 2.** Distribution of Safety Behavior

| Safety Behavior | Frequency | Percentage (%) |
|---|---|---|
| Safe | 11 | 34.4 |
| Unsafe | 21 | 65.6 |
| **Total** | 32 | 100.0 |

**Table 3.** Cross-tabulation between determinant safety behavior and safety behavior

| Determinant | Safety Behavior | | | | Total | |
|---|---|---|---|---|---|---|
| | Safe | | Unsafe | | | |
| | n | % | n | % | N | % |
| **Age** | | | | | | |
| <40 years | 5 | 29.4 | 12 | 70.6 | 17 | 100.0 |
| ≥40 years | 6 | 40.0 | 9 | 60.0 | 15 | 100.0 |
| **Health and Safety Training** | | | | | | |
| Yes | 9 | 36.0 | 16 | 64.0 | 25 | 100.0 |
| No | 2 | 28.6 | 5 | 71.4 | 7 | 100.0 |
| **Competence** | | | | | | |
| Yes | 10 | 38.5 | 16 | 61.5 | 26 | 100.0 |
| No | 1 | 16.7 | 5 | 83.3 | 6 | 100.0 |
| **Attitude** | | | | | | |
| Positive | 11 | 35.5 | 20 | 64.5 | 31 | 100.0 |
| Negative | 0 | 0 | 1 | 100.0 | 1 | 100.0 |
| **Motivation** | | | | | | |
| High | 8 | 44.4 | 10 | 55.6 | 18 | 100.0 |
| Moderate | 3 | 21.4 | 11 | 78.6 | 14 | 100.0 |
| **Supervision** | | | | | | |
| Good | 11 | 37.9 | 18 | 62.1 | 29 | 100.0 |
| Bad | 0 | 0 | 3 | 100.0 | 3 | 100.0 |
| **Knowledge** | | | | | | |
| Good | 8 | 36.4 | 14 | 63.6 | 22 | 100.0 |
| Sufficient | 3 | 30.0 | 7 | 70.0 | 10 | 100.0 |
| **Education** | | | | | | |
| Senior High School/ Equivalent | 1 | 20.0 | 4 | 80.0 | 5 | 100.0 |
| Diploma-III | 8 | 44.4 | 10 | 55.6 | 18 | 100.0 |
| Bachelor/Equivalent | 2 | 33.3 | 4 | 66.7 | 6 | 100.0 |
| Master | 0 | 0 | 3 | 100.0 | 3 | 100.0 |

**Table 4.** Result of Logistic Regression Test

| Hosmer and Lemeshow Test | Sig. |
|---|---|
| Step 1 | 0.839 |

The independent variables, which include age, recent level of education, occupational health and safety training, competence, attitude, motivation, supervision, and knowledge, are tested by regression to see whether or not the independent variable factors have the potential to carry out safe actions.

According to Table 4, the significance value was > 0.05. This indicates the model's fit and acceptability (Ghozali, 2018). Therefore, all independent variables studied can simultaneously influence the dependent variable. Based on research objectives, the older the age, the more frequent occupational health and safety training, the more competent, the higher motivation, the better attitude, the better of supervision, and the better the knowledge of workers, the safer the work.

## DISCUSSION

### Determinants of Safety Behavior among Clinical Pathology Assistants at Dr. Soebandi Regional Hospital Jember, Indonesia

The age of clinical pathology assistants was included in the productive age, which was divided into two categories: <40 years and ≥40 years. Age can affect work safety because several physical functions or capacities, such as vision, hearing, and reaction speed, can decrease when people age over 30 years (Prasetyo, Susilo, and Wijaya, 2021). To analyze patient samples, medical laboratory analysts must have precision in their vision. Physical vision-related capacity is also required for patient sampling, especially blood sampling. Other work areas, such as administrative officers in clinical pathology laboratories, require speed of reaction in providing services to patients, participating in lifting and transporting samples, entering patient data, and printing patient examination results. Other tasks that require reaction speed include cleaning services for handling medical waste, transporting medical waste to the incinerator, and distributing consumable equipment to each room.

Training is one way to reduce unsafe behavior. Additionally, the hospital must train new workers on preventative measures and safety protocols to prioritize safety during their work (Sudarsana,

Widhiawati, and Jaya, 2023). The research findings reveal that hospitals provide training on topics such as fire extinguisher use, hand hygiene, hospital occupational health and safety, laboratory occupational health and safety, infection prevention and control, correct use of personal protective equipment (PPE), spill kits, material-appropriate waste disposal, first aid and basic life support, and emergency codes. Workers report that the hospital implements training in the years 2015, 2019, 2020, and 2022. The Ministry of Health, under Regulation Number 66 of 2016, mandates annual training and education sessions for hospital occupational safety and health. The aim of training and education based on these regulations is to increase understanding, abilities, and skills in implementing occupational health and safety by all human resources in the hospital.

Based on the research results described in Table 1, it is known that six clinical pathology assistants (19.7%) did not have the appropriate competencies for their type of work. The six people who lacked competency were admin, general assistant, and cleaning service. The competencies possessed by the 26 workers included STR, SIP, basic phlebotomy training, quality control, risk management, trouble solving, TB Ro training, TB Ro training representation, bone marrow aspiration, microbiology PMX, HDT interpretation, result validation, culture interpretation, PCR, competency assessor certificate, competency test certificate, CI certificate, sperm analysis, BDRS training, basic clinical microbiology examination, and biomolecular ITD. On average, clinical pathology assistants with competence in their fields were medical laboratory analysts and pathologists. The competencies that employees possess will influence their performance (Laksana and Mayasari, 2021).

Approximately 96.9% of clinical pathology assistants have a positive attitude, while 3.1% still have a negative attitude. The positive attitude among clinical pathology assistants was characterized by an excellent closed response regarding the use of personal protective equipment, completing work according to standard operational procedures, completing work without joking around, using work equipment or machines under their authority, and adhering to their assigned work section. A positive work attitude can reduce unsafe actions and create safe work behavior (Berek, 2023).

Clinical pathology assistants have moderate and high motivation at work. Most clinical pathology assistants have high motivation (56.3%) and moderate motivation (43.8%). The high category of motivation was characterized by the absence of awkward working relationships, the absence of harsh reprimands, the availability of adequate work equipment, the provision of safety information in dangerous situations, and adherence to work safety regulations. Self-motivation can lead to safe behavior and is crucial in the workplace (Devi, Harahap, and Dewi, 2021).

Workers should be more disciplined when working under supervision (Sulistyowati and Sukwika, 2022). Most clinical pathology assistants agreed that supervision was good for as many as 25 people (78.1%), and seven people (21.9%) disagreed with that statement. This shows that superiors, namely the laboratory head, had carried out good monitoring. The laboratory head makes observations in each workroom to monitor clinical pathology assistants' work safety. They received effective supervision to ensure their constant vigilance at work, compliance with work procedures, and adherence to work safety.

The knowledge gained in this research was the understanding that respondents have regarding the meaning and purpose of occupational health and safety, the function of personal protective equipment (PPE), work fatigue factors, the purpose of standard operating procedures, the causes of work accidents, unsafe conditions, and hazards around the work environment. Table 1 divides the knowledge of clinical pathology assistants into three categories: good, sufficient, and bad. However, the research results indicate that their knowledge falls into two categories: good and sufficient. Most clinical pathology assistants have a thorough understanding of occupational health and safety, its meaning, the function of personal protective equipment, the purpose of standard operating procedures, and the causes of dangerous conditions. Workers who possess comprehensive knowledge are able to identify and differentiate the hazards associated with safe work practices, and they are also more likely to adhere to established procedures due to their awareness of workplace risks. If workers know the risks, they can avoid unsafe behavior by working safely (Ananda *et al*., 2023).

Education can encourage and affect workers' awareness of safe behaviour, such as using personal protective equipment, among other things (Syekura and Febriyanto, 2021). The most recent education level of clinical pathology assistants was Diploma-

III, with as many as 18 people (56.3%). Six individuals (18.8%) had completed a bachelor's degree, while five (15.6%) had graduated from senior high school or its equivalent. People in senior high school or equivalent were administrative officers in the laboratory. There were three clinical pathology assistants whose last education was a master's degree (9.4%). Based on Ministry of Health Regulation Number 42 of 2015 concerning permits and practice of medical laboratory analysts, the minimum education that medical laboratory technology analysts must complete is Diploma-III.

**Safety Behavior among Clinical Pathology Assistants at Dr. Soebandi Regional Hospital Jember, Indonesia**

Almost all clinical pathology assistants demonstrated safety behavior by wearing personal protective equipment when working, using equipment appropriate for the job, using work equipment according to procedures, carrying out safety precautions, complying with standard operating procedures, always paying attention to warnings or work safety signs, and completing work without joking around. In the laboratory, work safety signs were available. The hospital supplied personal protective equipment, which was also available in the laboratory. While some of the available work equipment operates efficiently, we promptly repair any malfunctions, allowing us to utilize other equipment. Workers can clearly see the existing work safety signs and always pay attention to them. The hospital also provides work safety hazard warnings, such as fire alarms, and employees are able to hear the sound of these warnings. Fitriani, Jafar, and Gobel (2020) conducted research on several safe behaviors implemented by nurses at RSU Bahagia Makassar, including the use of personal protective equipment, adherence to standard operating procedures, adoption of safe working positions, and exercise of caution. Health workers in the inpatient installation of Haji Medan Public Hospital practiced safe behavior, with the majority of respondents using personal protective equipment (70%). Some of the personal protective equipment used by all respondents are masks and gloves (Fatimah, 2021). Parjo (2021) research reveals that 94.8% of the workers at Kubu Raya Regional Hospital have adopted safe practices by using personal protective equipment.

**Description of Safety Behavior based on Determinant among Clinical Pathology Assistants at Dr. Soebandi Regional Hospital Jember, Indonesia**

Based on Table 3, it appears that as clinical pathology assistants get older, they tend to behave more safely. Researchers found that 70.6% of clinical pathology assistants under 40 years old engaged in unsafe actions, such as not always using personal protective equipment, not using equipment in accordance with procedures, not always implementing safety precautions, not adhering to standard operating procedures, not fully utilizing personal protective equipment, rarely paying attention to body position during work, and completing tasks without joking around. Workers aged <30 years have less experience, lack discipline, and are careless or hasty in completing work (Pertiwi and Widyanti, 2021). More senior employees are more confident at work, while younger employees have less extensive work experience, so they think that work safety is unimportant (Untari *et al*., 2021).

Clinical pathology assistants who have attended occupational health and safety training tend to behave more safely than workers who have not participated in occupational health and safety training. In 2022, the hospital's HSE (K3RS) carried out its final training session. The hospital conducted both online and in-person training sessions. It shows that the occupational health and safety training provided to clinical pathology assistants can increase safety behavior. Fassa and Rostiyanti (2020) advocate for frequent training to refresh workers' memories about occupational health and safety, ensuring their constant alertness to work safely.

Clinical pathology assistants who are competent in their field of work are more likely to behave safely. Most of them are medical laboratory analysts in clinical pathology laboratories. Pathologists and medical laboratory analysts have STR and SIP (valid until 2024-2028). A total of 23 people (71.8%) were medical laboratory analysts. Competence can improve employees' safe behavior at work. Certain types of work, such as medical laboratory analysts, require work skills. We hope that competent employees can seriously prepare to reduce the risk of work accidents by behaving safely (Bilqis, Sultan, and Ramdan, 2021).

Attitude is a person's tendency to carry out or not carry out specific behaviors. However, it focuses on an individual's awareness process (Pratiwi and Fariscy, 2022). This study found that clinical pathology assistants with negative attitudes did not behave safely, as they neglected their body position while working. Based on Table 3, clinical pathology assistants with a positive attitude tend to behave more safely than those with a negative attitude. This shows that a positive attitude toward workers will increase their safe behavior. The influence of workplace role models, the availability of information, rewards, and punishment, as well as workers' knowledge levels, are just a few factors that can motivate positive attitudes (Astari and Ardyanto, 2019).

According to Table 3, 78.9% of clinical pathology assistants exhibited moderate motivation and did not adhere to safe work practices. This was due to their use of work equipment not in accordance with procedures, their failure to wear complete personal protective equipment, and their infrequent attention to body position during work. Clinical pathology assistants with high motivation tend to behave more safely than those with moderate motivation. This demonstrates that the higher the motivation at work, the safer it will be. Encouragement to work safely can lead someone to act carefully towards themselves or others in order to behave safely at work (Sulistyorini, Rahfiludin, and Suroto, 2019).

Despite reporting poor supervision, clinical pathology assistants continued to exhibit unsafe behavior due to their inconsistent use of personal protective equipment, disregard for standard operating procedures, incomplete use of personal protective equipment, and infrequent attention to body position during work. People who stated that their superiors' supervision was good tended to behave more safely than those with poor supervision. This demonstrates that the laboratory head's supervision can foster a safe work environment. Clinical pathology assistants attest to the well-executed and routine supervision. Supervision can cause workers to be more disciplined when working (Sulistyowati and Sukwika, 2022).

Table 3 reveals that despite having sufficient knowledge, 70% of clinical pathology assistants did not behave in a safe manner. This was due to their misuse of work equipment, failure to follow safety precautions, non-compliance with standard operating procedures, lack of use of complete personal protective equipment, infrequent attention to body position, and tendency to joke around during work. People with good knowledge tend to behave more safely than those with only sufficient knowledge. This shows that the higher the level of knowledge, the safer the behavior at work will be. Workers with a high level of knowledge are able to recognize and distinguish dangers, as well as work safely and in accordance with procedures, due to their awareness of the risks present in their workplace. If workers know the risks they will accept, they can avoid unsafe behavior by working safely (Ananda *et al*., 2023).

All workers have different levels of education. According to Table 3, the majority of clinical pathology assistants, specifically those with a recent Diploma-III level of education, exhibit safety behavior, accounting for up to eight individuals (44.4%). Two workers with a bachelor or equivalent as their last education behaved safely (33.3%), and one with a senior high school education behaved safely (20%). Even with senior high school education levels, up to 80% of workers exhibited unsafe behavior due to their inconsistent use of personal protective equipment, lack of precautions, incomplete use of personal protective equipment, and infrequent attention to body position during work. Workers whose last education was a Diploma-III have a greater tendency to behave safely. This is because most clinical pathology assistants are medical laboratory analysts whose last education was Diploma-III. Some workers with high levels of education do not behave safely because they lack awareness of how to act safely at work (Pangestu, 2020).

According to Table 4, all independent variables can simultaneously influence safe behavior. That means the older the age, the more frequent occupational health and safety training, the more competent, the higher motivation, the better attitude, the better of supervision, and the better the knowledge of workers, the safer the work. Rizkita, Fathimah, and Asnifatima's (2020) research elucidates that a higher level of knowledge, a more positive attitude, and a higher motivation to prevent work accidents all contribute to a safer workplace. Another study by Feby (2021) explains that knowledge, attitudes, availability of PPE, and use of PPE can simultaneously influence safe behavior while working.

## CONCLUSION

According to this research, several workers have demonstrated safe behavior while working in the clinical pathology laboratory. Although the majority of workers operate properly, numerous risky behaviors were seen, including failing to wear all required personal protection equipment and infrequently paying attention to body alignment when working. The clinical pathology laboratory has implemented additional measures to promote safe behavior, including superior supervision and reasonable supervision efforts. Clinical pathology assistants who behave safely were ≥40 years old, have attended occupational health and safety training, have competence, a positive attitude, high motivation, state that supervision was good, have good knowledge, and have the latest education level of Diploma-III. Future researchers should consider expanding their population research to include not only clinical pathology workers, but also other health workers, to compare safe behavior among them.

## CONFLICT OF INTEREST

There is no conflict of interest in this research.

## AUTHOR CONTRIBUTION

All authors have contributed to the creation of this research, starting from concept, research design, and provided solutions to obstacles in this research.

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