

Original Research Article

Analysis of Compliance Factors in the Use of Personal Protective Equipment and Their Relation to Occupational Diseases among Sasirangan Industry Workers in Banjarmasin City

ABSTRACT

Occupational diseases are illnesses caused by work and/or the work environment, which can be experienced by workers in the sasirangan industry. Most sasirangan industry workers in Banjarmasin City do not use personal protective equipment (PPE) while working. The objective of this study was to analyze factors related to PPE compliance and its association with occupational diseases among sasirangan industry workers in Banjarmasin City. This research employed an analytical observational design with a cross-sectional approach, conducted at three sasirangan industry sites in Banjarmasin. Samples were obtained using purposive sampling, with a total of 50 workers. Data were collected through questionnaires. Univariate and bivariate analyses were performed using the chi-square test. The univariate analysis showed that 38% of sasirangan workers had a history of occupational diseases, 58% were non-compliant with PPE use, 32% had poor knowledge regarding PPE, 52% had negative attitudes toward PPE use, and 30% reported the unavailability of PPE in the workplace. The bivariate analysis revealed a significant association between PPE compliance and occupational diseases, as well as between attitudes toward PPE use and PPE availability with PPE compliance, while no significant association was found between knowledge of PPE and PPE compliance among sasirangan industry workers in Banjarmasin City.

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INTRODUCTION

Occupational diseases are illnesses caused by work and/or the work environment, which generally develop over a relatively long period after exposure to potential hazards and can often be reversed by eliminating the exposure. However, occupational diseases may become irreversible if not addressed at an early stage.¹ Occupational diseases can occur among workers in the textile industry, one of which includes workers in the Sasirangan industry.²

Sasirangan fabric is the largest household industry product produced by the community of Banjarmasin, particularly in Sungai Jingah and Surgi Mufti sub-districts. It is a traditional textile of the

Banjar ethnic group in South Kalimantan, commonly worn during customary ceremonies. Sasirangan fabric is generally produced by the Banjar community on a small scale or through household industries.³⁻⁵ In addition, the existence of *Kampung Sasirangan* as a handicraft tourism destination in Seberang Masjid Subdistrict also serves as a source of income for the local community. The growth of *sasirangan* fabric production has contributed positively to the welfare of the Banjar people; however, it has also had negative impacts on the health of *sasirangan* industry workers.⁵⁻⁷

The process of producing *sasirangan* fabric consists of several stages. The first stage is preparing plain white cloth. In the second stage, design patterns or drawings are created on the cloth as a guide for stitching. At this stage, the potential occupational risk occurs when workers sit in a bent position for prolonged periods. The third stage involves hand-stitching with threads at intervals of one to two millimeters. Here, the associated risk arises from inadequate lighting conditions in the workspace. Subsequently, the fourth stage is fabric dyeing using an immersion technique. At this stage, risks are encountered when workers do not use personal protective equipment (PPE), which may result in inhalation of hot steam or exposure to splashes of hot water. The fifth stage involves removing the stitches and washing the fabric thoroughly. In this process, workers are prone to injuries caused by the use of sharp tools such as cutters and scissors. Finally, the sixth stage consists of drying and ironing the *sasirangan* fabric. At this point, workers are at risk of burn injuries.⁸⁻¹⁰

Workers in the *sasirangan* textile industry are at risk of developing occupational diseases such as irritant contact dermatitis, allergic contact dermatitis, urticaria, acute respiratory infections, burns, occupational asthma, occupational rhinitis or rhinosinusitis, bronchitis, eye irritation, and musculoskeletal disorders.² The occupational diseases among workers in the *sasirangan* industry are caused by exposure to physical, chemical, and biological agents, as well as by non-ergonomic body postures.^{11,12} Based on the 2023 data from the Sungai Jingah Public Health Center in Banjarmasin City, several diseases were identified among the ten most common cases, including acute respiratory infections (2,043 cases), irritant and allergic contact dermatitis (a total of 616 cases), and rhinitis (582 cases) (Puskesmas Sungai Jingah, 2023). These conditions pose significant health risks to the local community, the majority of whom are employed as *sasirangan* workers.

Previous research by Skripsiana et al. (2024) reported that 83.33% of *sasirangan* industry workers in Banjarmasin City had experienced or were currently experiencing occupational diseases. The occupational diseases identified included irritant contact dermatitis, allergic contact dermatitis, burns on the extremities, eye irritation, and acute respiratory infections. The majority of *sasirangan* workers exhibited poor occupational health behaviors, accounting for 76.67%. Worker behavior was found to be significantly associated with occupational diseases, with a p-value of 0.006 and an odds ratio (OR) of 29.33. This indicates that workers with poor occupational health behaviors were 29.33 times more likely to develop occupational diseases compared to those with good behaviors. Furthermore, most *sasirangan* industry workers in Banjarmasin City did not use PPE during work activities. Specifically, 93.33% of workers never used protective goggles, 86.67% never wore aprons, 40% never used masks, and 20% never wore safety boots while working.¹³

Efforts to prevent occupational diseases include eliminating risks, controlling sources of hazards, and utilizing PPE.^{14,15} PPE refers to the gear used during work activities with the purpose of preventing occupational hazards, mitigating work-related risks, and reducing the incidence of occupational diseases, thereby ensuring worker safety.¹⁵

The importance of workers' compliance with the use of PPE in preventing occupational diseases constitutes a fundamental aspect of occupational safety and health. Such compliance has highly significant implications, particularly in the prevention of occupational diseases such as chemical poisoning, dermatitis, infections, and respiratory illnesses. Through the proper use of PPE, workers can reduce the risk of exposure to hazardous substances and safeguard their health and safety in the workplace.¹⁶

Despite the clear importance of PPE, a significant gap remains in understanding why compliance remains extremely low in the Sasirangan industry compared to formal textile sectors. Previous studies have documented the high prevalence of disease, yet they have not deeply explored the specific behavioral determinants or the socio-economic factors that hinder compliance in this informal and home-based setting. There is a lack of evidence identifying which factors (whether predisposing, enabling, or reinforcing) most strongly influence a worker's decision to use PPE and how these factors directly correlate with the actual occurrence of occupational diseases among these artisans. Without addressing this gap, safety interventions will continue to be ineffective for the informal sector. Therefore, this study aims to fill this knowledge gap by providing a comprehensive analysis of the factors associated with PPE compliance and their direct relationship with occupational diseases among Sasirangan industry workers in Banjarmasin City.

METHODS

The study population comprised all workers engaged in 35 home-based sasirangan textile industries across Sungai Jingah, Surgi Mufti, and Seberang Masjid Subdistricts, totaling approximately 140 individuals (with an average of four workers per unit). To select the participants, a purposive random sampling technique was implemented. First, purposive screening was applied based on specific inclusion criteria: workers aged > 18 years, possessing a minimum employment tenure of one year, and voluntarily consenting to participate. From the pool of eligible candidates who met these criteria, a simple random sampling procedure (using a lottery system) was then conducted to select the final respondents.

The final sample size was established at 50 subjects. This number satisfies the minimum sample size recommendation by Bailey (1982, as cited in Sugiyono, 2013), which dictates that a minimum of 30 subjects is required for correlational or bivariate observational studies to maintain statistical viability. Furthermore, given the small and homogeneous nature of the total informal sector population (N = 140), a sample size of 50 representatively accounts for more than 35% of the entire population. This proportion is considered highly adequate for cross-sectional behavioral observations in informal industrial settings, ensuring sufficient statistical power for the Chi-square contingency analysis ($\alpha = 0.05$).

The research instruments used in this study included an informed consent form, a respondent identity sheet, and a questionnaire designed to collect data on the history of occupational diseases, compliance with the use of PPE, knowledge regarding PPE, attitudes toward PPE use, and the availability of PPE, as well as health examination tools.

The research procedure consisted of data collection through questionnaires to obtain information on the history of occupational diseases and compliance with the use of PPE among workers. Before completing the questionnaire, the study subjects were provided with explanations regarding the background, objectives, benefits, and procedures of the study. Subjects who agreed to participate were asked to complete an informed consent form. This was followed by a diagnostic physical examination for occupational diseases conducted by a physician (a member of the research team) using appropriate medical instruments. The researchers also assured participants of the confidentiality of all collected data.

The subsequent stage of the research involved collecting data from the questionnaires distributed to the study subjects and obtaining diagnostic physical examination results of occupational diseases from the medical assessments conducted by the examining physician. Following data collection, data processing and statistical analysis were carried out.

Univariate analysis was employed to describe each variable, presented in the form of frequency distribution tables and percentages. Bivariate analysis was conducted to examine the relationship between independent and dependent variables. This analysis utilized the chi-square statistical test with a 95% confidence level. The study employed 2×2 contingency tables, which were analyzed using SPSS version 26.

RESULT AND DISCUSSION

Respondent's Characteristics

In this study, the characteristics of the respondents include age, gender, education, lengths of employment, number of workdays per month, and number of work hours per day. which are presented in Table 1.

Table 1. Respondent's Characteristics

Characteristics	n	%
Age		
Adolescents (<19 years old)	34	68
Pre-Elderly (45-59 years old)	13	26
Elderly (>59 years old)	3	6
Gender		
Women	22	44
Men	28	56
Education Level		
Did Not Graduate from Elementary School	4	8
Elementary School	12	24
Junior High School	7	14

Characteristics	n	%
Senior High School	24	48
Diploma	1	2
Bachelor	2	4
Field of Work in the Sasirangan Industry		
< 3 fields	44	88
≥ 3 fields	6	12
Length of Employment		
1-5 years	11	22
6-10 years	29	58
11-20 years	7	14
21-30 years	3	6
Number of Workdays per Month		
11-15 days	4	8
21-25 days	25	50
26-30 days	21	42
Number of Work Hours per Day		
1-4 hours	2	4
5-8 hours	41	82
9-12 hours	7	14
Total	50	100

Based on the data presented in Table 1, it is observed that the age of workers in the sasirangan industry is predominantly adult (19-44 years old), with 34 workers (68%). Young workers often experience occupational diseases. There are many reasons why younger workers tend to have a higher risk of occupational diseases compared to older age groups. Several factors contribute to the high incidence of occupational diseases among young workers, including lack of attention, lack of discipline, a tendency to follow their impulses, carelessness, haste, and lack of experience in their work.¹⁷

The gender is predominantly male, with 28 workers (56%). This study is in line with the research by Supardi (2022), which states that more male workers experienced occupational diseases compared to female respondents.¹⁸ Helmina's (2019) study states that occupational diseases, particularly musculoskeletal complaints, occur more frequently in men than in women. This is due to the physiological aspect that men's muscle strength is generally greater than that of women, leading to men experiencing more musculoskeletal complaints. This difference is influenced by the hormonal distinctions between men and women. Female hormones result in a softer physical build and the presence of lipid tissues in certain parts of the body that are not found in men.¹⁹

Education is mostly at the senior high school level, with 24 workers (48%). This study is in line with the research by Dwiyantri (2012), which states that among all the worker respondents surveyed, both educated and uneducated workers had experienced occupational diseases. In fact, even those with higher education levels (senior high school) were found to have all experienced occupational diseases. This indicates that the level of risk faced by both highly educated and less educated workers tends to be similar in the workplace. In general, educational attainment does contribute to a person's ability to better assess the risks involved in performing a job. However, these risks largely depend on the type of work being carried out.²⁰

The length of employment is predominantly 6-10 years, with 29 workers (58%). This study is in line with the research by Tafui (2021), which states that workers with longer work tenure mostly have never suffered from occupational diseases, whereas workers with shorter tenure are more likely to have experienced such conditions. Longer work tenure tends to pose a lower risk of occupational diseases due to the workers' experience on the job. On the other hand, those with shorter tenure are more prone to occupational diseases due to negligence and carelessness. However, the longer a person has been working, the more likely they are to experience certain functional declines or disorders in their body. These gradual declines and health issues can affect an individual's work activities and productivity.²¹ The frequency distribution of occupational disease variables among

workers in the sasirangan industry in Banjarmasin is presented in Table 2.

Table 2. Frequency Distribution of Occupational Diseases Variables

Occupational Diseases	n	%
Yes	19	38
No	31	62
Total	50	100

Based on Table 2, it can be observed that 19 workers (38%) in the *sasirangan* industry predominantly experienced occupational diseases. Occupational diseases are illnesses caused by work activities and/or the work environment. Such diseases generally develop over a relatively long period following exposure to potential hazards and can often be alleviated once the exposure is eliminated. However, occupational diseases may become irreversible if not addressed at an early stage.¹ Workers in the *sasirangan* textile industry are at risk of developing occupational diseases such as irritant contact dermatitis, allergic contact dermatitis, urticaria, acute respiratory infections, burns, occupational asthma, occupational rhinitis or rhinosinusitis, bronchitis, eye irritation, leptospirosis, tetanus, and musculoskeletal disorders.²

The distribution of types of occupational diseases among workers in the Sasirangan industry in Banjarmasin City is presented in Table 3.

Table 3. Distribution of Types of Occupational Diseases Among Workers in the Sasirangan Industry in Banjarmasin City

Types of Occupational Diseases	Number of Workers
Eye Irritation	3
Asthma	2
Musculoskeletal Disorder	8
Irritant Contact Dermatitis	3
Allergic Contact Dermatitis	1
Acute Respiratory Infections	4
Low Back Pain	1
Rhinitis	2

Based on Table 3, the majority of occupational diseases among *sasirangan* industry workers were musculoskeletal disorders (33.33%), followed by acute respiratory infections (16.66%), irritant contact dermatitis (12.6%), and eye irritation (12.5%). These findings are consistent with the 2023 data from the Sungai Jingah Public Health Center in Banjarmasin City, which reported that several of the ten most prevalent diseases included acute respiratory infections (2,043 cases) and irritant contact dermatitis (616 cases).²²

Lestari and Warseno (2018) found that the occupational disease risks experienced by batik workers, who are part of the textile industry, include musculoskeletal disorders, respiratory issues, eye muscle fatigue, and skin problems. These risks occur due to workers' behavior, such as not paying attention to their working position while batik painting, leading to muscle tension that affects the musculoskeletal system. Working in the same position for long periods and having a rigid position that does not adhere to ergonomic standards can also result in occupational diseases.²³

The distribution of job fields among workers in the sasirangan industry in Banjarmasin City is presented in table 4.

Table 4. Distribution of Job Fields Among Workers in The Sasirangan Industry in Banjarmasin City

Type of Job Field for Sasirangan Workers	Number of Workers
Creating design patterns	6
Basting stitches on fabric	6
Binding the fabric before dyeing	1
Dyeing fabric	21

Type of Job Field for Sasirangan Workers	Number of Workers
Removing stitches from fabric	17
Washing fabric	9
Drying fabric	10
Ironing fabric	10

Based on Table 4, the majority of *sasirangan* industry workers were engaged in fabric dyeing, followed by stitch removal, drying, and ironing. The fabric dyeing process poses risks when workers do not use PPE, particularly environmental hazards such as skin exposure to dyes, which may lead to dermatitis, as well as the risk of inhaling hot steam and being splashed with hot water. The stitch removal process carries the risk of injuries caused by the use of sharp tools such as cutters and scissors. Meanwhile, the processes of drying and ironing the fabric are associated with the risk of burn injuries.⁸⁻¹⁰

The research by Setyawan (2015) states that in the risk assessment, the dyeing work without PPE was found to be the highest risk, posing a danger to workers' health and requiring immediate action to prevent the occurrence of occupational diseases.²⁴ Based on the research conducted by Heriyani et al. (2024), the occupational diseases experienced by workers in the *sasirangan* industry in Banjarmasin City include lower back pain, back pain, respiratory tract infections, burns, allergic contact dermatitis, irritant contact dermatitis, myalgia, knee osteoarthritis, cutaneous candidiasis, allergic rhinitis, COPD, and urticaria.²⁵ The frequency distribution of the variable compliance with the use of PPE among *sasirangan* industry workers in Banjarmasin City is presented in Table 5.

Table 5. Frequency Distribution of Compliance with the Use of PPE among *Sasirangan* Industry Workers in Banjarmasin City

Compliance with the Use of PPE	n	%
Non-compliant	29	58
Compliant	21	42
Total	50	100

Based on Table 5, it can be observed that the majority of *sasirangan* industry workers in Banjarmasin City were non-compliant with the use of PPE, totaling 29 individuals (58%). The frequency distribution of knowledge regarding PPE among *sasirangan* industry workers in Banjarmasin City is presented in Table 6.

Table 6. Frequency Distribution of Knowledge about PPE among *Sasirangan* Industry Workers in Banjarmasin City

Knowledge About PPE	n	%
Less	16	32
Good	34	68
Total	50	100

Based on Table 6, it can be observed that the majority of *sasirangan* industry workers in Banjarmasin City had less knowledge regarding PPE, totaling 16 individuals (32%). The frequency distribution of attitudes toward the use of PPE among *sasirangan* industry workers in Banjarmasin City is presented in Table 7.

Table 7. Frequency Distribution of Attitudes toward the Use of PPE among *Sasirangan* Industry Workers in Banjarmasin City

Attitudes Toward the Use of PPE	n	%
Negative	26	52
Positive	24	48
Total	50	100

Based on Table 7, it can be observed that the majority of *sasirangan* industry workers in Banjarmasin City exhibited a negative attitude toward the use of PPE, totaling 26 individuals (52%).

The frequency distribution of the availability of PPE among *sasirangan* industry workers in Banjarmasin City is presented in Table 8.

Table 8. Frequency Distribution of Availability of PPE among *Sasirangan* Industry Workers in Banjarmasin City

Attitudes Toward the Use of PPE	n	%
Not available	15	30
Available	35	70
Total	50	100

Based on Table 8, it can be observed that the majority of *sasirangan* industry workers in Banjarmasin City had PPE available, totaling 35 individuals (70%). Bivariate analysis in this study was performed using the Chi-square test at a 95% confidence level ($\alpha = 0.05$) to examine the relationship between the independent variable (compliance with the use of PPE and the dependent variable (occupational diseases). The analysis also aimed to identify factors associated with compliance in PPE use, including knowledge about PPE, attitudes toward PPE use, and PPE availability. Associations were considered statistically significant if the p-value was <0.05 .

Table 9. Bivariate Analysis of Compliance with the Use of PPE and Occupational Diseases among *Sasirangan* Industry Workers in Banjarmasin City

Compliance With the Use of PPE	Occupational Disease		OR 95% CI	p-value
	Yes	No		
Non-compliant	15	14	4,554 (1,228-16,881)	0,019
Compliant	4	17		
Total	19	31		

Based on Table 9, it can be concluded that compliance with the use of PPE among *sasirangan* industry workers is significantly associated with occupational diseases, with a p-value of 0.019 and an odds ratio (OR) of 4.554. This indicates that workers who are non-compliant with PPE use are 4.554 times more likely to experience occupational diseases compared to workers who are compliant. The Odds Ratio of 4.554 reinforces that PPE is not merely a formal requirement but a critical barrier against specific hazards in Sasirangan production. Workers who do not wear PPE are directly exposed to chemical irritants in dyes and physical hazards during the stitching and washing processes. This finding emphasizes that in an informal sector like the Sasirangan industry, where engineering controls (such as advanced ventilation or automated dyeing machines) are often absent, PPE becomes the primary and most vital line of defense for the workers.

These findings are consistent with the study by Liswanti (2015), which reported that compliance with PPE use was associated with health disorders among household waste collectors in Tasikmalaya City.¹⁵ Proper use of PPE according to operational standards can protect workers from hazards in the work environment.²⁶ Workers in the industry are at risk of occupational diseases, which is due to their non-compliance with the use of PPE, leading them to come into direct contact with various chemicals or high-risk work environments.²⁷

This study aligns with the findings of Untari et al. (2019), which concluded that many workers still do not properly use PPE such as masks, gloves, shoes, work clothing, and hats.²⁸ According to Geller (2001), compliance with the use of PPE remains low due to the lack of a safety culture in the workplace environment.²⁹ Husaini et al (2017) found a relationship between the use of PPE and occupational diseases. Workers who do not use PPE are 1,500 times more likely to experience occupational diseases compared to those who do use PPE.¹⁷

PPE is one of the controls for workplace accidents, so using PPE can reduce the risk of occupational diseases.³⁰ According to Prasetyo's research (2024), textile artisans sit on the floor without any back support, typically sitting cross-legged or in whatever position they find comfortable. However, this sitting posture is certainly not comfortable for the artisans' backs and necks. In addition, the artisans also work in a hunched position.³¹ The importance of workers' compliance with the use of PPE constitutes a key element in the context of occupational safety and health, particularly in preventing occupational diseases.³² This compliance has highly significant implications, particularly in the prevention of occupational diseases such as chemical poisoning, dermatitis, infections, and

respiratory disorders. By properly using PPE, workers are able to reduce the risk of exposure to hazardous substances and maintain both their health and safety in the workplace.¹⁶

Table 10. Bivariate Analysis of Knowledge About PPE and Compliance with PPE Use among Sasirangan Industry Workers in Banjarmasin City

Knowledge About PPE	Compliance With the Use of PPE		p-value
	Non-compliant	Compliant	
Less	12	4	0,095
Good	17	17	
Total	29	21	

Based on Table 10, it can be concluded that knowledge about PPE among *sasirangan* industry workers was not significantly associated with compliance ($p=0.095$). Knowledge is considered a predisposing factor, which facilitates or underlies the occurrence of certain behaviors, such as compliance with PPE use.¹⁵ However, this study indicates a "knowledge-practice gap" where high literacy regarding safety does not automatically translate into safety actions. In the context of Sasirangan artisans, knowledge may be overshadowed by long-standing traditional habits and the perception that PPE is cumbersome or reduces manual dexterity needed for intricate fabric work. This proves that while knowledge is a necessary predisposing factor, it is often insufficient to change behavior without strong external reinforcement or internal motivation.

These findings are consistent with the study by Prasetyo (2023), which reported that there was no significant relationship between knowledge and compliance with the use of PPE among installation and technical workers.³¹ These findings are also consistent with the study by Nurbeti (2021), which reported that there was no significant relationship between hospital staff's knowledge of the standards for rational use of PPE and their compliance with PPE use according to the standards.³³

Field observations revealed that the majority of *sasirangan* industry workers in Banjarmasin City had good knowledge of PPE, accounting for 34 workers (68%). However, the level of compliance in using PPE during work was predominantly non-compliant, involving 29 workers (58%). This was evidenced during the study, where many workers were found not to use PPE while working, including masks, gloves, boots, goggles, and aprons. Although most respondents possessed good knowledge, they were not fully willing or aware of the importance of consistently complying with PPE use during work activities.

Table 11. Bivariate Analysis of Attitudes Toward the Use of PPE and Compliance with PPE Use among Sasirangan Industry Workers in Banjarmasin City

Attitudes Toward the Use of PPE	Occupational Disease		OR 95% CI	p-value
	Yes	No		
Negative	19	5	6,080 (1,720-21,495)	0,004
Positive	10	16		
Total	29	21		

Based on Table 11, attitudes toward the use of PPE were significantly associated with compliance ($p=0.004$). The high OR (6.080) indicates that attitude is a much stronger predictor of compliance than knowledge. Attitude is a form of evaluation or emotional response that reflects support or lack of support toward an object. In Sasirangan production, workers with a negative attitude (often fueled by the belief that traditional methods are safe enough) are 6.08 times more likely to be non-compliant. Conversely, fostering positive attitudes can lead workers to perceive PPE as a professional necessity rather than a burden, which significantly reduces the risk of developing occupational diseases.

This study is consistent with the findings of Liswanti (2015), which reported that attitudes toward the use of PPE were significantly associated with PPE compliance among household waste collectors in Tasikmalaya City.¹⁵ This study is also consistent with the findings of Kurusi (2020), which reported that attitudes toward the use of PPE were significantly associated with PPE compliance among street sweepers in Singkil and Tuminting Subdistricts, and with the study by Akbar (2020), which found a significant relationship between attitudes toward PPE use and PPE compliance among workers at PT.

PLN (Persero).^{34,35}

Attitude is considered a predisposing factor, which facilitates or underlies the occurrence of a particular behavior, namely compliance with the use of PPE, and constitutes one of the domains in behavior formation.^{15,34} Attitude is a form of evaluation or emotional response that reflects support or lack of support toward an object and represents a readiness to react in a particular manner when an individual is faced with a stimulus that requires a response.³⁶

These findings are consistent with the theory stating that individuals are aware of their attitudes by drawing conclusions from their own behavior and perceptions of situations. The implication is that behavioral changes undertaken by an individual lead them to conclude that their attitude has changed.³⁷ The findings of this study indicate that fostering positive attitudes among workers toward the use of (PPE) should be undertaken by the company to enhance workers' compliance. Compliance with PPE use in each work process aims to protect workers physically in the event of occupational accidents and diseases. Moreover, promoting positive attitudes toward PPE use among workers can also have a beneficial impact on the company by enhancing its reputation.³⁵

Table 12. Bivariate Analysis of Availability of PPE and Compliance with PPE Use among Sasirangan Industry Workers in Banjarmasin City

Availability of PPE	Compliance With the Use of PPE		OR 95% CI	p-value
	Non- compliant	Compliant		
Not Available	13	2	7,719 (1,512-39,415)	0,007
Available	16	19		
Total	29	21		

Based on Table 12, it can be concluded that the availability of PPE among *sasirangan* industry workers is significantly associated with compliance in PPE use, with a p-value of 0.007. PPE availability is considered an enabling factor, which facilitates the occurrence of a specific behavior, namely compliance with PPE use.¹⁵ With the highest OR of 7.719, availability is identified as the most dominant enabling factor in this study. Even if a worker has a positive attitude, the absence of accessible and appropriate PPE makes compliance impossible. In the Sasirangan industry, which consists largely of small household businesses, the cost of purchasing PPE often falls on the workers. The significant 7.7-fold increase in non-compliance risk due to unavailability highlights a systemic issue that requires external support, such as provision of safety equipment by local authorities.

This study is consistent with the findings of Liswanti (2015), which reported that the availability of PPE was significantly associated with PPE compliance among household waste collectors in Tasikmalaya City.¹⁵ This study is also consistent with the findings of Hanum (2022), which reported that attitudes toward the use of PPE were significantly associated with PPE compliance at RSI Siti Rahmah.³⁸ In the workplace, the adequacy and comfort of facilities, including the condition of (PPE), can enhance the performance of each worker, thereby promoting optimal use. The availability of PPE serves as a supporting factor in ensuring compliance with PPE use to prevent accidents, occupational hazards, and work-related diseases among employees. If a company fails to provide PPE, it places its workers at risk of accidents and occupational diseases in the work environment. Therefore, it is crucial for companies to implement regulations that mandate the provision of PPE for workers according to the specific requirements of their respective job roles.³⁸

CONCLUSION

The study highlights that compliance with the use of PPE plays a significant role in reducing the occurrence of occupational diseases among *sasirangan* industry workers in Banjarmasin. Attitudes toward PPE use and its availability were identified as crucial factors influencing compliance, while knowledge alone was not sufficient to determine workers' adherence. These findings emphasize the importance of creating a supportive work environment that ensures the provision of PPE and fosters positive attitudes toward its use as an essential preventive strategy. Further research is needed to explore the effectiveness of targeted interventions, such as health promotion programs, training, and policy enforcement, in improving compliance and ultimately reducing the risk of occupational diseases in this industry.

AUTHOR'S CONTRIBUTION STATEMENT

All authors contributed substantially to the conception and design of the study. NSS, FH, and WN conceived the study. All authors collected the data. SHZ and WS performed the data analysis and

interpretation. NSS drafted the manuscript. SHZ, WS, and FDP critically reviewed and revised the manuscript for important intellectual content. All authors read and approved the final version of the manuscript.

CONFLICTS OF INTEREST

The authors declare that there are no conflicts of interest regarding the publication of this manuscript.

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