

# Workers' Compliance with Covid-19 Prevention and Control Protocols in X Mining Company

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**Abstract.** The mining sector presents various risks that can contribute to the spread of Covid-19, such as confined work areas and high worker mobility. The Indonesian government has made several efforts to prevent the spread of Covid-19, including the implementation of health protocols as mitigation measures in workplaces. Employee compliance is a crucial factor in the successful implementation of health protocols in the workplace. The purpose of this study is to analyze the determinant factors of employee compliance in implementing Covid-19 health protocols at Company X. A cross-sectional study was conducted from July to August 2022 with a self-administered questionnaire. The sample of the study was drawn from mining workers in Company X as research subjects. The finding reveals that out of 185 respondents, 91.4% exhibited high compliance in implementing health protocols in the workplace. There is a relationship between knowledge, attitude, company support, vaccination history, and the level of employee compliance in implementing health protocols in the working environment of Company X. This study revealed that company support was the most dominant factor influencing worker compliance. Therefore, good company support is necessary for ensuring employees' safety and health compliance behavior.

**Keywords:** Covid-19; mining; compliance; safety; prevention

## 1 Background

The mining industry is one of the sectors with the highest potential hazards. One of the current health risks in the mining sector is the transmission of Covid-19 among workers. Approximately 4,000 mine workers from 18 countries had been infected with Covid-19 from the beginning of the outbreak until June 2020 [1]. The cumulative number of confirmed Covid-19 cases among mine workers in Indonesian state-owned enterprises (BUMN) and their subsidiaries until September 2020 was 1,219 people [2].

The Ministry of Energy and Mineral Resources (ESDM) issued Circular Number 02.E/04/DJB/2020 addressed to the Director General of Minerals and Coal regarding the prevention and handling of Covid-19 in the mineral and coal mining industries. Apart from the implementation of infection prevention and control programs in the workplace, one factor that determines the success of implementation is the involvement of workers. Worker involvement can be seen through their compliance in implementing health protocols in their daily lives, both at the workplace and outside work area [3]. Assessing compliance behavior in the implementation of health protocols is crucial in preventing the spread of Covid-19.

Even if an organization has a good infection prevention program, low compliance becomes a major

obstacle to the success of implementing Covid-19 health protocols. The non-compliance of the public with health protocols has led to high infection rates of Covid-19 in Indonesia [4]. Several previous studies have mentioned that compliance with Covid-19 health protocols is influenced by knowledge, attitudes, motivation, and the availability of facilities. Knowledge about Covid-19 directly influences individuals' attitudes toward Covid-19, thereby increasing compliance with health protocol implementation [5,6,7]. Other studies have also revealed that the level of worker compliance is influenced by perceived management or company support [8,9]. Company support can create a positive work climate, enabling workers to feel safe, and indirectly encouraging them to adopt safety and health behaviors in the workplace, including improving compliance [3].

Based on previous research on compliance with health protocols and preliminary studies from both sources mentioned, the author is interested in investigating the employee compliance in implementing Covid-19 prevention and control protocols.

## 2 Methods

### 2.1 Design and Participants

This is quantitative cross-sectional research. This study is conducted to examine a specific population or sample and will be statistically analyzed [10]. The population in

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this study is all employees at Company X, totaling 1,000 people. The sample size is determined using the simple random sampling technique, which can be calculated using the Slovin's formula:

$$n = \frac{N}{N \times e^2 + 1}$$
$$n = \frac{1.00}{((1.000 \times (0,05)^2) + 1)} = \frac{1.000}{3,5} = 286 \text{ subjects}$$

The sample size taken is 286 individuals. In this study, the author added 10% more samples than the calculated total sample size to account for potential dropouts. The samples were selected based on inclusion criteria of being over 18 years old, willing to participate in the study, willing to complete the questionnaire, and exclusion criteria of not completing the questionnaire and refusing to participate in the study.

## 2.2 Ethical Consideration

The research protocol of this study has been approved by the Ethics Committee of the Faculty of Medicine, Public Health, and Nursing at Gadjah Mada University (KE/FK/0681/2022). All participants read the informed consent form and confirmed their interest in participating before starting the survey. The confidentiality of participant identities is maintained throughout the research by keeping participant information confidential.

## 2.3 Research Tools

The questionnaire on knowledge related to Covid-19 consists of 14 statements that are modified from information about Covid-19 and health protocols in Covid-19 prevention form [11,12,13]. The scoring of the questionnaire is based on the Guttman Scale, with true or false answer choices. Favorable statements with the "True" option are given a score of "1," and the "False" answer is given a score of "0," while for unfavorable statements, the "True" option is given a score of "0" and the "False" option is given a score of "1."

The questionnaire on attitudes towards Covid-19 consists of 8 statements that are modified from [5]. The statements cover cognitive (thoughts or ideas), affective (emotions/feelings), and conative (observable behavior) aspects. The measurement of the questionnaire uses a Likert Scale with 4 answer alternatives: Strongly Disagree, Disagree, Agree, and Strongly Agree. Favorable statements with the "Strongly Agree (SA)" option are given a value of 4, "Agree (A)" is given a value of 3, "Disagree (D)" is given a value of 2, and "Strongly Disagree (SD)" is given a value of 1. Conversely, unfavorable statements with the "Strongly Agree (SA)" option are given a value of 1, "Agree (A)" is given a value of 2, "Disagree (D)" is given a value of 3, and "Strongly Disagree (SD)" is given a value of 4.

The questionnaire on perceived company support consists of 10 questions that are modified from the study [3], designed to assess the influence of organizational

climate on infectious disease prevention in the workplace. The questions cover information, communication, availability of facilities and infrastructure, and management values, with all statements being favorable. The assessment of the questionnaire uses a Likert Scale with 4 answer alternatives: (1) Strongly Disagree, (2) Disagree, (3) Agree, (4) Strongly Agree.

The questionnaire on compliance with health protocols consists of 15 statements that are modified from the study [5]. The statements in the questionnaire cover workers' behavior in implementing Covid-19 prevention and control measures, especially in the workplace. The scoring of the questionnaire uses a Likert Scale with 4 answer alternatives: (1) Never, (2) Sometimes, (3) Often, and (4) Always.

## 2.4 Data Collection

To understand the level of knowledge about Covid-19 and health protocols in the workplace, attitudes towards Covid-19, perceived company support by employees, as well as employee compliance in implementing health protocols in the workplace, a descriptive analysis was conducted based on the scoring of questionnaires collected from respondents. Documentation and observations were conducted regarding the condition of the work area, facilities and infrastructure for the prevention and control of Covid-19 in workplace, as well as the employees' activities in implementing health protocol in the workplace.

## 2.5 Statistical Analysis

### 2.5.1 Validity Test

Validity testing of the knowledge, attitude, company support, and compliance questionnaires was conducted using Pearson correlation with a correlation coefficient (r) table value of 0.3610 (two-tailed significance level  $\alpha=0.05$ ). The validity test of the knowledge questionnaire yielded correlation coefficient (r) values ranging from 0.363 to 0.695 (r observed > r table), indicating that all the questions were valid and could be used as a research tool. For the attitude questionnaire, the calculated correlation coefficients (r) ranged from 0.535 to 0.751 (r observed > r table), indicating that all the questions regarding attitudes towards Covid-19 were valid and could be used as a research tool. The company support questionnaire obtained correlation coefficients (r) ranging from 0.819 to 0.917 (r observed > r table), indicating that all the questions in the questionnaire were valid and could be used as a research tool. Regarding the compliance questionnaire, the calculated correlation coefficients (r) ranged from 0.381 to 0.801 (r observed > r table), indicating that all the questions in the compliance questionnaire were valid and could be used as a research tool.

## 2.5.2 Reliability Test

Reliability testing of the research instruments for the variables of knowledge about Covid-19, attitudes towards Covid-19 and health protocols, perceived company support, and compliance were measured using Cronbach's Alpha reliability coefficient ( $\alpha$ ) based on Table 1. The instruments are considered reliable if the calculated value is greater than 0.60. The results of the reliability tests for each variable are presented in the following table:

**Table 1.** Reliability Test Results

| Variable                                        | $\alpha$ | Description |
|-------------------------------------------------|----------|-------------|
| Knowledge About Covid-19                        | 0.752    | Reliable    |
| Attitudes towards Covid-19 and Health Protocols | 0.766    | Reliable    |
| Perceived Company Support                       | 0.971    | Reliable    |
| Workers' Compliance                             | 0.887    | Reliable    |

## 3 Results

This study originally required a sample of 318 respondents, but only 196 samples were collected. The sociodemographic data of the respondents including age, gender, duration of employment in the company, income level, educational level, history of Covid-19 infection, and history of Covid-19 vaccination. After data cleaning, a total of 185 respondents were obtained with the following characteristics:

**Table 2.** Respondent Characteristics

| Respondent Characteristics                   | n (%)       |
|----------------------------------------------|-------------|
| <b>Age</b>                                   |             |
| ≥ 30 Years Old                               | 143 (77.30) |
| <30 Years Old                                | 42 (22.70)  |
| <b>Gender</b>                                |             |
| Male                                         | 151 (81.62) |
| Female                                       | 34 (18.38)  |
| <b>Duration of Employment in the company</b> |             |
| ≥10 Years                                    | 61 (32.97)  |
| <10 Years                                    | 124 (67.03) |
| <b>Educational Level</b>                     |             |
| Senior High School                           | 86 (46.49)  |
| University                                   | 99 (53.51)  |
| <b>Income Level (Indonesian Rupiah)</b>      |             |
| 3.000.000-5.000.000                          | 16 (8.65)   |
| 5.000.000-10.000.000                         | 46 (24.86)  |
| 10.000.000-15.000.000                        | 37 (20.00)  |
| >15.000.000                                  | 86 (46.49)  |
| <b>History of Covid-19 Infection</b>         |             |
| Have                                         | 142 (76.76) |
| Have Not                                     | 43 (23.24)  |
| <b>History of Covid-19 Vaccination</b>       |             |
| 2 Doses                                      | 29 (15.68)  |
| 3 Doses                                      | 156 (84.32) |

Table 2 shows that majority of respondents are over 30 years old, most of them are male with less than 10 years of work experience. All workers have graduated from high school and college with varying income levels. As many as 78% of respondents had been

infected with Covid-19 and all of them had received at least 2 doses of Covid-19 vaccine.

**Table 3.** Distribution of Research Variable Frequency

| Variable                  | Category | Frequency (n) | Percentage (%) |
|---------------------------|----------|---------------|----------------|
| Compliance Level          | High     | 169           | 91.4           |
|                           | Low      | 16            | 8.6            |
| Knowledge Level           | Good     | 167           | 90.3           |
|                           | Bad      | 18            | 9.7            |
| Employee's Attitude       | Positive | 177           | 95.7           |
|                           | Negative | 8             | 4.3            |
| Perceived Company Support | Good     | 182           | 98.4           |
|                           | Bad      | 3             | 1.6            |
| <b>TOTAL</b>              |          | 185           | 100            |

Table 3 shows that 91.4% of respondents have high compliance in implementing the Covid-19 prevention and control in the workplace. As many as 90.3% of respondents have good knowledge about Covid-19 and health programs. Most of the respondents (95.7%) had a positive attitude towards Covid-19 and health protocols, and as many as 98.4% of respondents perceived a good company's support.

**Table 4.** Bivariate Analysis' Results

| Variable | Compliance in<br>Implementing Health<br>Protocols |                 | Total | 95%<br>CI | p-value |
|----------|---------------------------------------------------|-----------------|-------|-----------|---------|
|          | Obedient                                          | Not<br>Obedient |       |           |         |
|          | n (%)                                             | n (%)           |       |           |         |

|                                                 |               |             |              |                 |        |
|-------------------------------------------------|---------------|-------------|--------------|-----------------|--------|
| Level of Knowledge                              |               |             |              |                 |        |
| High Knowledge                                  | 156<br>(93.4) | 11<br>(6.6) | 167<br>(100) | 0.078-<br>0.360 | 0.002  |
| Poor Knowledge                                  | 13<br>(72.2)  | 5<br>(27.8) | 18<br>(100)  |                 |        |
| Attitudes towards Covid-19 and Health Protocols |               |             |              |                 |        |
| Positive                                        | 164<br>(92.7) | 13<br>(7.3) | 177<br>(100) | 0.072-<br>0.355 | 0.003  |
| Negative                                        | 3<br>(37.5)   | 5<br>(62.5) | 8<br>(100)   |                 |        |
| Perceived Company Support                       |               |             |              |                 |        |
| Good                                            | 168<br>(92.3) | 14<br>(7.7) | 182<br>(100) | 0.121-<br>0.398 | <0.001 |
| Bad                                             | 1<br>(33.3)   | 2<br>(66.7) | 3<br>(100)   |                 |        |

Based on Table 4, it can be concluded that the majority of respondents who have a high level of knowledge about Covid-19 and comply with health protocols also have a high level of knowledge (93.4%). The analysis results indicate a relationship between the level of knowledge about Covid-19 and health protocols and the level of compliance in implementing health protocols in the workplace ( $p=0.002$ ). The majority of respondents (92.7%) with good compliance had a positive attitude towards Covid-19 and health protocols. The analysis results showed a relationship between attitudes towards Covid-19 and health protocols and the level of compliance in implementing health protocols in the workplace ( $p=0.003$ ). The majority of respondents

(92.3%) perceived good company support and were compliant in implementing health protocols in the workplace. The analysis results indicate a relationship between perceived company support and the level of compliance in implementing health protocols among employees ( $p < 0.001$ ).

**Table 5.** Bivariate Analysis' Results from Sociodemographic Characteristic

| Variable                               | Compliance in Implementing Health Protocols |                       | Total        | 95% CI         | p-value      |
|----------------------------------------|---------------------------------------------|-----------------------|--------------|----------------|--------------|
|                                        | Obedient<br>n (%)                           | Not Obedient<br>n (%) |              |                |              |
| <b>Age</b>                             |                                             |                       |              |                |              |
| ≥ 30 years old                         | 130<br>(90,9)                               | 13<br>(9,1)           | 143<br>(100) | -0,177 – 0,120 | 0,695        |
| < 30 years old                         | 39<br>(92,9)                                | 3<br>(7,1)            | 42<br>(100)  |                |              |
| <b>Gender</b>                          |                                             |                       |              |                |              |
| Men                                    | 136<br>(90,1)                               | 15<br>(9,9)           | 151<br>(100) | -,0241 – 0,053 | <b>0,192</b> |
| Women                                  | 33<br>(97,1)                                | 1<br>(2,9)            | 34<br>(100)  |                |              |
| <b>Work Experience</b>                 |                                             |                       |              |                |              |
| ≥ 10 years                             | 56<br>(91,8)                                | 5<br>(8,2)            | 61<br>(100)  | -0,137 – 0,159 | 0,879        |
| < 10 years                             | 113<br>(91,1)                               | 11<br>(8,9)           | 124<br>(100) |                |              |
| <b>Educational Level</b>               |                                             |                       |              |                |              |
| University                             | 9<br>(92,9)                                 | 7<br>(7,1)            | 99<br>(100)  | -0,089 – 0,207 | 0,413        |
| High School                            | 77<br>(89,5)                                | 9<br>(10,5)           | 86<br>(100)  |                |              |
| <b>Income Level (IDR)</b>              |                                             |                       |              |                |              |
| > 15 mils.                             | 77<br>(89,5)                                | 9<br>(10,5)           | 86<br>(100)  |                | 0,423        |
| 10 – 15 mils.                          | 35<br>(94,6)                                | 2<br>(5,4)            | 37<br>(100)  | -0,206- 0,090  |              |
| 5 – 10 mils.                           | 41<br>(89,1)                                | 5<br>(10,9)           | 46<br>(100)  |                |              |
| 3 – 5 mils.                            | 16<br>(100)                                 | 0<br>(0)              | 16<br>(100)  |                |              |
| <b>History of Covid-19 Infection</b>   |                                             |                       |              |                |              |
| Have                                   | 129<br>(90,8)                               | 13<br>(9,2)           | 142<br>(100) | -0,180 – 0,116 | 0,658        |
| Have Not                               | 40<br>(93,0)                                | 3<br>(7,0)            | 43<br>(100)  |                |              |
| <b>History of Covid-19 Vaccination</b> |                                             |                       |              |                |              |
| 3 Doses (booster)                      | 146<br>(93,6)                               | 10<br>(6,4)           | 156<br>(100) | 0,037- 0,324   | <b>0,012</b> |
| 2 Doses                                | 23<br>(79,3)                                | 6<br>(20,7)           | 29<br>(100)  |                |              |

Based on Table 5, it can be concluded that most respondents in the age group of 30 years old and above have high compliance (90.9%). As many as 90.1% of respondents were male and had high level of compliance. Workers with a higher level of education are more compliant with the implementation of health protocols in the workplace. Most workers (91.1%) with less than 10 years of working experience adhere to the implementation of the health program, with varying levels of income. A total of 142 respondents had been

infected with Covid-19, and 129 of them had high adherence (90.8%) toward health protocols. All workers have received the Covid-19 vaccine from both the government and the company. A total of 146 respondents who had received 3 doses of Covid-19 vaccine (93.6%) adhered to the implementation of the health protocol in the workplace. Of all these sociodemographic characteristics, only the Covid-19 Vaccine History variable had an association on Worker Compliance in implementing health protocols ( $p = 0.012$ ).

**Table 6.** Multivariate Multiple Logistic Regression Analysis' Results

| Variable                                                  | z     | p-value | OR     | 95% CI        |
|-----------------------------------------------------------|-------|---------|--------|---------------|
| Knowledge Level                                           | 1,478 | 0,028   | 4,386  | 1,176-16,354  |
| Attitudes towards Covid-19 and Health Protocols Perceived | 2,011 | 0,016   | 7,473  | 1,4,63-38,170 |
| Company Support                                           | 3,213 | 0,015   | 24,865 | 1,889-327,355 |

In Table 6, it can be concluded that the final model obtained includes independent variables that have a statistically significant influence, namely knowledge level, attitude, and company support ( $p\text{-value} < 0.05$ ). The formed model is considered appropriate as it satisfies the model's significance, indicated by the omnibus test with a  $p\text{-value} < 0.001$ . The obtained coefficient of determination (R-squared) value is 0.194, meaning that the independent variables included in the model can explain 19.4% of the variance in compliance, while the remaining 80.6% is influenced by other factors. The variable that has the most dominant relationship with employee compliance is company support ( $z = 3.213$ ). From the model, it can be observed that employees with good company support are 24 times more likely to comply with health protocols in the workplace compared to employees with insufficient company support.

## 4 Discussion

### 4.1 The Relationship Between Knowledge Regarding Covid-19 in The Workplace and Employee Compliance in Implementing Health Protocols in Workplace

The results of this study indicate a significant relationship between knowledge of COVID-19 and employee compliance in implementing COVID-19 health protocols. This suggests an improvement in compliance with an increase in knowledge. This finding is supported by the bivariate analysis results, which showed that knowledge has a  $p\text{-value} < 0.05$ , indicating a significant association with compliance. The data analysis of the 185 respondents in this study reveals that

the majority of them have a high level of knowledge, with an accuracy rate of 90.3%. The research observations indicate that the company has provided education and training regarding COVID-19 to the employees. The company has also made promotive efforts by displaying posters and banners in various areas in the workplace. The questionnaire responses have further confirmed that the employees of Company X possess good knowledge about COVID-19.

The education and training provided primarily cover common clinical symptoms experienced by patients, the risk of transmission and severity of COVID-19, as well as the implementation of health protocols as preventive and control measures both at the workplace and at home. The success of these promotive efforts is reflected in the questionnaire responses of the respondents, with the majority answering correctly to the statements in the distributed questionnaire. However, there are certain aspects where many respondents lack knowledge, such as information regarding the use of antibiotics as a treatment for COVID-19, the effectiveness of using a face shield without a mask, and the possibility of transmission without exhibiting fever symptoms.

A high level of knowledge means that respondents understand the dangers and the process of COVID-19 transmission, which is then followed by compliance in implementing health protocols. This study is in line with some theories, which state that knowledge levels influence the level of compliance in implementing health protocols. The higher an individual's knowledge level, the higher their tendency to comply with health protocol implementation [14,15]. Similarly, previous studies have indicated a relationship between knowledge levels and compliance [16,17]. Both studies suggest that non-compliance is due to a lack of knowledge among workers. This study aligns with the findings of another research that good knowledge, along with positive attitudes of workers and company commitment, leads to an increased compliance with COVID-19 prevention protocols [18]. In conclusion, this study shows that the level of knowledge of employees at Company X regarding COVID-19 and health protocols significantly influences their compliance in preventing and controlling COVID-19 in the workplace.

#### **4.2 The Relationship Between Attitudes Towards Covid-19 in The Workplace and Employee Compliance in Implementing Health Protocols in The Workplace**

The results of this study indicate a significant relationship between workers' attitude towards Covid-19 and their compliance in implementing Covid-19 prevention and control protocols. This is supported by the statistical test results, which showed a p-value of 0.002 ( $p < 0.05$ ) for the relationship between attitudes and compliance. These findings demonstrate that individuals with positive attitudes are more likely to exhibit compliant behavior in implementing health protocols and following regulations for the prevention

and control of Covid-19 in the workplace. This is consistent with some theories which suggests that attitudes are related to individuals' intentions and readiness to behave in accordance with stimuli in performing certain actions, in this case, the implementation of Covid-19 prevention and control measures [19,20].

The study conducted reveals that there are still some respondents who exhibited negative attitudes, which can be interpreted as a sign of boredom and lack of interest in Covid-19 and the implementation of health protocols. Even though the compliance level of workers is relatively high, the observation results of this study showed that some workers rarely wore masks in their daily activities. This might be because of some workers experiencing breathing difficulty because they were working in underground mines. This finding aligns with previous study which suggests that a decrease in compliance behavior may be due to feelings of boredom resulting from limited activities that have been restricted since the start of the pandemic [21]. Based on the observations, respondents have adapted to the presence of Covid-19 in their daily lives, leading to a reduction in anxiety as well.

This study is consistent with previous research which found a relationship between attitudes and the level of compliance in implementing Covid-19 health protocols [22]. Based on the theories and previous research mentioned above, it can be concluded that in this study, an individual's attitude has been proven to have a correlation with compliance in implementing prevention and control protocols for Covid-19 in the workplace. Similarly, in another study [23], it was found that attitudes are associated with both compliance and non-compliance, and compliance should be approached by analyzing the constructive and destructive aspects of individual attitudes. Positive attitudes will lead to constructive behavior, which in this study refers to compliance behavior. Therefore, it can be concluded that the positive and constructive attitudes of employees at Company X are associated with compliance in the prevention and control of Covid-19 in the workplace.

#### **4.3 The Relationship Between Perceived Company Support Among Employees in The Workplace and Worker Compliance in Implementing Health Protocols at Workplace**

The results of this study have shown that there is a significant relationship between Perceived Company Support in the workplace and Workers' Compliance in the Implementation of Covid-19 Prevention and Control Protocols. This is supported by the statistical test results indicating that knowledge about compliance has a p-value of  $< 0.001$ . This finding proves that individuals with high compliance were also influenced by the support from the company to implement and follow regulations for Covid-19 prevention and control in the workplace.

One of the supports that can be provided to workers is the availability of adequate facilities and

infrastructure for Covid-19 prevention and control in the workplace. A previous study stated that the availability of prevention facilities and infrastructure in the workplace affects workers' compliance in implementing health protocols in the workplace [24]. The availability of facilities and infrastructure in the workplace is the responsibility of the company owners. Therefore, if these needs are met, workers will feel the positive management support. This company has been following the government regulations for Covid-19 prevention and control since the beginning of the pandemic. They also have a special budget to support Covid-19 prevention and control in the workplace to their maximum capacity. The observation results in the study also showed that Company X prioritizes the safety and health of workers by implementing lockdown policies and shifting the focus from production processes to the recovery and health of workers as the top priority when multiple positive cases were found in the workplace. The initial case of Covid-19 caused many workers to be unable to meet their targets, causing a decline in the mining process and output. This is one of the main reasons this company prioritizes the wellbeing of their employees. Workers who have a healthy work environment can increase their work productivity and job satisfaction [25].

The observation results showed that the availability of facilities and infrastructure in efforts to prevent Covid-19 has been fulfilled by 98%. Researchers observed that temperature checking was no longer available in the work area, but it was only carried out by the health workers at the company's main entrance gate as a screening method before employees begin their roster shift. This was done because temperature checking using the contactless thermometer was not effective in early detection of Covid-19 cases anymore because not all those infected with Covid-19 show symptoms of fever [26]. In addition, the company has a PCR inspections schedule that is routinely carried out on workers which is more effective in detecting Covid-19 cases.

Good management support can influence the psychological aspects of workers. When the psychological aspects of workers are well fulfilled, it becomes one of the triggering factors for improving their behavior [27]. This study is consistent with another research which proves that workers will find it easier to implement or apply Covid-19 prevention and control programs if they are supported by the company [28]. Based on the theories and previous research mentioned above, it can be concluded that company support in this study for ensuring compliance in the implementation of Covid-19 prevention and control protocols in the workplace is very high. Similarly, previous research emphasizes the need for company support to ensure effective implementation of health protocols [29]. High compliance among workers in company X in adhering to these rules must be initiated by company support with a shared commitment between management and workers to provide tangible support. In conclusion, this study shows that the perceived company support by workers in company X has an impact on the level of

compliance in the implementation of Covid-19 prevention and control protocols in the workplace.

#### **4.4 The Relationship Between the History of Covid-19 Vaccination in The Workplace and The Compliance of Workers in Implementing Health Protocols in The Workplace**

The analysis results in this study indicate a significant relationship between the history of Covid-19 vaccination and the compliance of workers in implementing Covid-19 prevention and control protocols. This suggests an increase in the variable of knowledge with compliance. This is supported by the bivariate test results, which show that knowledge regarding compliance has a p-value of 0.012 ( $p < 0.05$ ). Most workers have received the Covid-19 vaccine up to the third dose, while the remaining workers have only received two doses.

The observation findings indicate that the workers of the company have been compliant in implementing Health Protocols in the Workplace by receiving vaccinations and undergoing screenings before starting work in their respective environment. Company X mandates that workers need to receive Covid-19 vaccine, as recommended by the government, with a minimum of two doses. Based on the observations made by the researchers, workers received the Covid-19 vaccine from their respective areas through government programs usually conducted at health centers, hospitals, and other public facilities. Vaccination is one of the preventive measures taken by company X considering the high mobility of the workers.

One of the policy efforts made by Company X is social distancing in the workplace, provision of self-isolation rooms, provision of vaccination for employees, and implementation of health protocols in the workplace. These policies are made as preventive and mitigation efforts against Covid-19, tailored to the characteristics of the mining Company X. This demonstrates that individuals who receive vaccinations will certainly implement or follow regulations for the prevention and control of Covid-19 in the work environment. This is inconsistent with some theories that suggest that the Covid-19 vaccine may lead to a decrease or relaxation in the adherence to health protocols because it is assumed to be safe from Covid-19 [21,30]. The study is in line with some research that shows that even though individuals have been vaccinated, they are not completely free from the transmission of Covid-19. Instead, it is one of the preventive measures and helps in suppressing the spread of Covid-19 [31].

This study is consistent with research stating that the more people receive vaccinations, the higher the compliance level with protocol implementation tends to be, as it is considered a preventive behavior [32]. Similarly, previous research indicates that vaccines can reduce the risk of spreading Covid-19 infections, but other preventive measures should still be followed. Communication and education regarding the importance

of vaccination also need to be enhanced, as vaccination is the most effective way to prevent infectious diseases [33,34]. Previous research suggests that a lack of education about vaccination can lead to misinformation about vaccines, causing individuals to hesitate in getting vaccinated. This hesitation can significantly affect individuals' compliance with vaccination, which is one of the preventive measures in workplace health protocols [35]. In conclusion, this study indicates that the Covid-19 vaccination history can influence their compliance with prevention and control measures for Covid-19 in the workplace.

#### **4.5 The Relationship Between Knowledge, Attitude, Perceived Company Support, and The History of Covid-19 Vaccination in The Workplace with The Compliance of Workers in Implementing Health Protocols in The Workplace**

The results of this study indicate that there is a correlation between Company Support in the workplace and Workers' Compliance in implementing Covid-19 prevention and control protocols. This is supported by the results of the multivariate analysis, which show that knowledge, attitude, and perceived company support have a 19.4% influence on compliance levels. Company support has the most dominant influence on workers' compliance behavior, followed by individual attitudes and knowledge. Workers who receive good company support tend to have high levels of compliance, and those with positive attitudes are more likely to adhere to health protocols. This is consistent with a study suggesting that Workers' Compliance in implementing Covid-19 prevention and control protocols should be supported by positive attitudes and adequate support to ensure effective implementation [8].

This study is consistent with the research conducted by [36], which demonstrates that workers who have high compliance also have high attitudes and knowledge, with the suggestion of company support through gradual supervision by management. This study also aligns with research [37] that identifies the factors influencing compliance with health protocols, such as supervision from management or supervisors in the workplace, and with the support of a company, compliance can be smoothly implemented. Similar to the research conducted by [38], it is not only the influence of individual characteristics on compliance with Personal Protective Equipment (PPE) usage but also the influence of perceived vulnerability, perceived benefits, training, and supervision, which are all signals for compliance with protocols.

A good working climate is created by company management to support and protect their employees at work [3]. Workers would find it easier to implement the Covid-19 prevention and control programs if they were supported by the company. Clear communication regarding health protocols as well as providing training in preventing Covid-19 can help workers better understand the intent and purpose of implementing these

health protocols [28]. It can be concluded from previous research related to perceived company support in the workplace and worker compliance, that high support and good communication is needed so that workers can successfully implementing health protocols for prevention and control in the working environment.

Factors that affect employee compliance with health and safety measures at work are related to the work environment, such as the theory by [39] which states that good compliance and safety awareness in employees of health and safety policies and their implications can improve worker welfare. Likewise with compliance in health behavior based on social norms. In the context of the work environment, it can be used to analyze how social norms in the workplace can affect employee health behavior. Behavior research based on social norms according to [40] that employee health compliance tends to come from the completeness of the facilities provided by the company which will then be followed by the good living habits of the workers.

From the results of the theory and research above, it can be concluded that creating a system and culture that encourages employee compliance in good health behavior at work is an important step for the company. If this is successfully adopted in the work environment, it can improve employee welfare, reduce absenteeism, and increase productivity. To implement these steps, it is important for companies to involve employees in the decision-making process and implementing health programs can help build a positive health culture that adheres to health behavior in the workplace. It can be concluded that in this study it proves that perceived company support at Company X influence the Employee Compliance in the Implementation of the Covid-19 Prevention and Controls.

## **5 Conclusion and Recommendation**

The level of knowledge, attitudes towards Covid-19 and health protocols, as well as perceived company support, influence workers' compliance with Covid-19 prevention and control protocols at PT. X by 19.4%, while the remaining 80.6% is attributed to other factors. Workers with good company support are 24 times more likely to comply with health protocols in the workplace compared to those who perceive less company support.

It is expected that the company will continue its obligation in implementing health protocols in the workplace because it is an adaptive health behavior that can protect both workers and the company. Health protocols in the workplace not only serve to prevent Covid-19 but also address various other health issues that may disrupt work activities.

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