



The Effect of Psychological Capital, Work Stress, and Exchange of Leaders on Work Productivity Mediated by Health Protocol Compliance

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Abstract. The Covid-19 pandemic situation requires employees to implement health protocols in the work environment as a way to reduce the potential for transmission. This study aims to analyze the influence of psychological capital, work stress, and leader-member exchange on employee productivity in the PT KAI DAOP 1 Jakarta area, which is mediated by compliance with health protocols. There is no prior study about employee compliance with covid health protocol, especially in transportation companies. The theories discussed to support the preparation of this study are in the form of theories related to psychological capital, work stress, leader-member exchange, compliance theory, and employee productivity. This study used respondents in the form of 391 employees of PT KAI in the Daop 1 Jakarta region with a cross-sectional research method using a questionnaire. The analysis of this study used SEM and was carried out with Lisrel 8.80 software. The results showed that there was a relationship between psychological capital, work stress, leader-member exchange, and in employee productivity in PT KAI DAOP 1 Jakarta area, which is mediated by compliance with health protocols.

Keywords: Psychological Capital · Work Stress · Leader-Member Exchange · Health Protocol Compliance · Work Productivity

1 Introduction

The Covid-19 pandemic has created a domino effect for the world community, which has a massive impact not only on health or the global economy but on individuals. According to World Bank data [1], World GDP has decreased from 2019, which reached \$87,568 Trillion down, in 2020 to \$84,747 Trillion. Because China is an essential node in global supply chains and a key manufacturing center worldwide, its economic policies contributed to the initial effects of the Covid-19 pandemic on the world economy [2].

The office as a workplace that can trigger increased transmission of Covid-19 in relation to physical distance, room ventilation, type of activity, duration of exposure, and individual susceptibility to infection are factors in the transmission cluster [3].

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R. Hurriyati et al. (Eds.): GCBME 2022, AEBMR 255, pp. 1412–1424, 2024.

https://doi.org/10.2991/978-94-6463-234-7_149

Given the significant potential for Covid-19 transmission in the workplace, companies in the world are making adjustments to policies related to working during the Covid-19 pandemic, such as working from home, working hybrid, and several companies, especially in Indonesia, continue to work from the office by implementing protocols preventing the spread of Covid-19.

Implementing the Covid-19 transmission prevention protocol in the workplace cannot be separated from the behavior of workers, which is also essential to ensure workplace safety. This is a form of implementing a safety culture. Safety culture refers to the shared values, norms, and practices of groups concerned with safety risks [4, 5]. Safety culture itself is currently a top priority in many organizations. It is being carried out because of various significant accidents in the past that occurred due to not correctly implementing a safety culture, one of which was the Chernobyl event in 1986 and the Deepwater Horizon oil spill [6]. The application of a safety culture in the company is carried out to reduce the level of risk of work accidents that occur in the risk of vulnerability [4].

During the current Covid-19 pandemic, given the high potential for the spread of viruses that can harm employees, safety culture in the form of implementing the Covid-19 health protocol in the organization is essential for the company to implement for employees. The way employees carry out health protocols can be influenced by several factors, such as individuals, jobs, organizations, and leadership as implementing factors. Regarding the concept of enabling factors from a safety culture, 3 factors can affect the implementation of the COVID-19 protocol for employees, namely psychological capital, work stress, and leader-member exchange.

Psychological capital represents factors from the individual side that can affect compliance because psychological capital is the main capital for an individual to commit to safety rules [6, 7]. Saleem et al. [7] and previous research have not discussed how psychological capital affects compliance with applying the Covid-19 protocol rules as a form of compliance.

Work stress symbolizes the work factor because the workload can affect how a person can comply with the rules in a company. The research of Smith et al. [8] regarding the relationship between work stress and firefighter safety behavior stated that Work stress makes people in the fire department less safe. The Covid-19 pandemic condition that requires employees to obey and implement health protocol rules while working in the office has the potential to cause discomfort and have implications for increasing work stress.

The concept of Leader-member exchange (LMX) symbolizes the factors of leadership where a leader has a great influence in setting an example regarding behavior to his subordinates. The LMX concept has an essential role in implementing the Covid-19 protocol rules, namely how a leader should be able to provide examples of behavior obeying the Covid-19 protocol rules.

Worker productivity can certainly be affected by the Covid-19 infection, which makes a person unable to work temporarily because they have to undergo isolation or treatment, and mobility restrictions can make employee productivity decrease. The impact of the Covid-19 pandemic has also affected many people who have to stay at home, and many companies have closed to avoid disease transmission and to comply with government regulations [9]. Considering that this infection is massive and has spread to all circles

of society worldwide, the number of employees who can be infected with Covid-19 is unlimited and will affect the productivity of all human resources in the company. Therefore, to prevent a decrease in employee productivity, it is necessary to mitigate and prevent Covid-19 in the workplace by implementing health protocols in the work environment.

Because of the Covid-19 pandemic, fewer people are using all kinds of transportation, both land, air, and water. The fear of contracting the virus, as well as the restrictions imposed by governments all over the world, prompted this shift [10]. One of the public transportation that has experienced a significant decline due to the Covid-19 pandemic is the train mode of transportation around the world. As attached by Eurostat [11], there has been a decline in the use of rail transportation in several European countries, such as Italy and France, which experienced a 26% decline in the number of train passengers in 2020 (YoY). On the Asian continent, The Covid-19 pandemic has also caused a big drop in the number of people who travel by train. As in Hong Kong, there was a decline in revenue in 2019 by \$HK 54.5 Billion (\$US 7 Billion) to \$HK 42.5 Billion in 2020. The decline in revenue and the number of train passengers did not only occur in European and East Asian countries but also hit Indonesia. In 2020, Bappenas [12] reported that rail transportation experienced a large decline of around 63.3%. Bappenas, in its 2021 report, attached that trains are still one of the modes of transportation most affected by the Covid-19 pandemic and the implementation of social distancing rules with a contraction percentage of - 19.74%.

The working area of Operational Region 1 Jakarta PT KAI was chosen based on several considerations as follows. First, the frequency of train trips in the Daop 1 area of Jakarta is the highest compared to other operational areas, with a total of 1600 trips by various types of trains. The high total number of train trips can increase the risk of Covid-19 transmission. In addition, the large number of travel frequencies in an area makes the number of employees in DAOP 1 the highest compared to other operational areas. As stated in PT KAI's 2020 annual report, the number of employees in DAOP 1 Jakarta is 3,197 people. Another consideration is that Jakarta has the highest cumulative number of Covid-19 cases in Indonesia, based on data compiled from the Ministry of Health, which is 1,251,211, the highest number of other provinces in Indonesia.

The rules during the operation of the train during the Covid-19 pandemic were made and enforced not only for prospective passengers, such as being required to wear a mask, having a minimum dose of 1 vaccination, and reducing passenger capacity but also being applied to PT KAI employees in all work operational areas such as using double masks. Wash hands, keep distance, avoid crowds, limit mobility, maintain immunity, and increase faith. These rules were implemented as a precautionary measure by PT KAI to reduce the possibility of the Covid-19 virus spreading in the PT KAI area. Given the importance of implementing health protocols for employees to reduce the transmission of Covid-19 and so that the company's operational activities can continue, it is necessary to examine how implementing health protocols for employees can work at KAI. In addition, it is necessary to know whether the factors related to the formation of health compliance in PT KAI employees affect the implementation of health protocols. It is important to research because it can affect the productivity of the company, which can affect the company's performance [13].

1.1 Literature Review

Health Protocol Compliance. The idea behind health protocol compliance is derived from the concept of compliance. Health compliance can also be defined as an individual's willingness to follow and implement health professionals' recommendations [14]. Health compliance is not only how a person follows medical advice and how the behavior of behavior to carry out a definite lifestyle to prevent and change certain behaviors to avoid disease [15–17]. Health compliance is related to changes in behavior and lifestyle in response to following what is ordered by the government [18]. The implementation of health protocols in businesses is driven by three factors: first, compliance with government directives, second, worker health, and third, responding to top management commitments or, in the case of organizations, responding to parent company commitments to COVID-19 prevention and control measures [19]. It has been found that the primary motivation behind the COVID-19 crisis offensive has been to protect employees, mitigate the crisis's negative consequences, and pave the way for the growth of the company's human capital [20].

Psychological Capital. Psychological capital is a concept that has a psychological domain and organizational behavior, and positive behavior. Luthans, Youssef, and Avolio [21] suggest that the basic capacity of an individual is important to provide self-motivation, cognitive processes, willingness to struggle, and show good performance at work. Avey, Reichard, Luthans, and Mhatre [22] state that psychological capital can affect organizational commitment, job satisfaction, employee welfare, organizational citizenship behavior, and employee performance. Probst et al. [23] in his writings explain that psychological capital is the main capital that employees need to have at work. Psychological capital consists of four dimensions, namely (1) self-efficacy, (2) hope, (3) optimism, and (4) resilience.

Work Stress. According to Jamal [24], work stress is defined as a reaction raised by individuals to the conditions of the work environment that are considered to threaten the individual both emotionally and physically. Kreitner and Kinicki [25] in their writings explain that work stress is an adaptive response formed by psychological characteristics that are influenced by an event in their environment. Wu et al. [26] describe job stress as an individual's response to an imbalance between the external and the capabilities available to individuals in facing these challenges. Work stress also has a bad impact on the company because it can reduce the performance of employees and the company [27]. Because of the negative effects of stress, they may have a negative impact on safety behavior. With the condition that companies need to carry out health protocols that are mandatory for employees, it can have a good and bad impact on work stress based on how the company can communicate this. Job stress is classified into four dimensions: influence in the workplace, unclear organization and conflict, individual demands and commitments, and time disruptions.

Leader-Member Exchange. According to the LMX theory, leaders do not interact with all of their subordinates in the same way; rather, they forge unique bonds or have various kinds of conversations with them [28–30]. These connections range from ones founded purely on an employment contract (i.e., low LMX or “out-group”) to ones marked by mutual trust, respect, like, and reciprocal influence (i.e., high LMX or “within the group”)

[28]. Bai, Li, Xi [31] explain that the interaction between superiors and subordinates can be done directly, interpersonally, and specifically occurs at the micro level. When a superior have transformational behavior and are effectively willing to accept social exchanges that occur between them and their superiors and can build high-quality LMX [31]. Liden & Masyln [32], in their writings, explain that the concept of leader-member exchange consists of several dimensions used. Four dimensions are used: affect, loyalty, contribution, and Professional Respect.

Productivity. Productivity is a concept that is a form of performance results, and the quantity produced is based on the performance of employees [33]. In the organization itself, productivity carried out by employees is a key area in the work environment [34]. Dalal [35], in his writings, describes that productivity is one way of measuring and researching how employees in the organization can be responsible. Wanyama and Mutsotso [36] explain indicators in employee productivity based on the amount of time devoted directly to work and also how these employees can function efficiently on a job. As the final form of organizational activity, productivity is a part where companies need to make projections so that company activities can run well and increase the productivity of both the organization and employees.

Hypothesis. The hypothesis in this study refers to the research model in the figure, which shows the relationship between variables as follows:

Psychological Capital with Protocol Compliance

In practice, psychological capital is one aspect of an employee's commitment to a company. This is done to increase employee job satisfaction with their work, one of which is by providing appropriate welfare [37]. As the basis for employees to work, psychological capital is a basic factor for employees in all aspects of work, such as solving existing problems and tasks, setting strategies, dealing with uncertainty, and also how employees can follow the rules imposed by the company. Self-efficacy, which is part of psychological capital, affects how employees control according to what they want and do to be able to do the work they do as safely as possible [38]. Not only as a driver, but self-efficacy is also considered an aspect that predicts a person's stable behavior toward health behavior [39]. Psychological capital, represented by optimism, is one of the control elements related to uncertain future possibilities [37]. Related to uncertainty in the future, the role of resilience becomes important as an aspect of uncertainty both now and in the future [40]. Employees are influenced by the existence of hope, which is an encouragement that comes from self-motivation to want to obey and participate in the company's regulatory program related to job safety [41]. With high hope, it becomes the reason for employees to want to obey the current safety regulations.

H-1: Psychological capital has a significant positive effect on health protocol compliance

Work Stress with Protocol Compliance

Work stress is one part that can increase employee insecurity at work. Besides that, work stress is an aspect of how employees view management commitment, especially related to applying safety rules within the company [42]. Jacobs & Pienaar [42] also

state that the existence of work stress experienced by employees in the company tends to display employee behavior that does not comply with safety rules, the main factors that influence work stress, namely conflict and ambiguity at work. Tahira M. Probst et al. [23]. Revealed that work stress is one of the causes of how employees tend to ignore safety-related regulations, which are carried out both to maintain and improve employee performance at work.

H-2: Work Stress has a significant negative effect on health protocol compliance

Leader-Member Exchange With Protocol Compliance

Leader-member exchange is one aspect that can affect the implementation of protocol compliance. Implementing leader-member exchange in safety behavior is done through social exchange [38]. Hofmann et al. [43] stated that LMX has a role related to how leaders have a role in how safety behavior is practiced. He et al. [38] revealed that the effect of LMX on protocol compliance is based on one of the factors of communication competence, besides that loyalty shown by superiors has no benefit for safety behavior. However, the most important thing is how loyalty is focused on organizational goals compared to interpersonal relationships, and respect is also a fundamental aspect of improving safety behavior with different backgrounds between superiors and subordinates.

H-3: Leader-member exchange has a significant positive effect on health protocol compliance

Psychological Capital with Productivity

Psychological capital has a significant positive effect on the performance and productivity of employees in the company [37]. Employees who have psychological capital values tend to be able to overcome the dynamics of work in the company. Psychological capital is the capital to be able to maximize the potential of employees so that they can produce human resources who have competitive advantages. This is related to positivity which aims to improve employee performance at work [21].

H-4: Psychological capital has a significant positive effect on productivity

Work Stress with Productivity

According to Sari et al. [44], work stress has a significant negative effect on productivity, and a high workload has implications for low employee performance. This is also agreed by Muis et al. [45] that employees who have stress due to work have a significant decrease compared to employees who do not have stress. Workload, as a problem in the company, has implications for employee performance and growth in a competitive company environment [46]. Factors that make workloads can reduce employee productivity in the company, one of which is because of the triggers that come from their work and the company that makes the productivity of employees in the company decrease [42].

H-5: Work stress has a significant negative effect on productivity

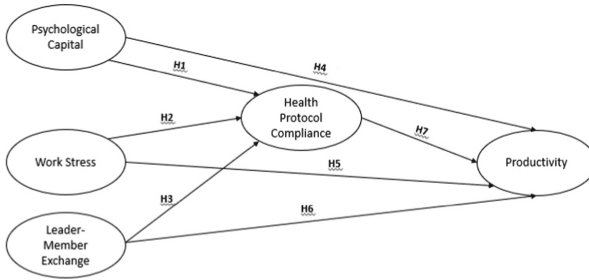


Fig. 1. Research Model.

Leader-Member Exchange with Productivity

Thompson et al. [47] said that LMX has an influence on employee productivity. This is because the higher LMX makes employees receive benefits and opportunities such as work performance, salary increases, and support in career development. The process of creating a relationship between superiors and subordinates will always lead to exchanges in the form of high-quality LMX [48]. Having good interpersonal relationships between superiors and subordinates has implications for increasing commitment and work results and making employee productivity increase [48]. The idea of reciprocity is where the superior considers that a competent subordinate is likely to reciprocate by doing the job quickly.

H-6: the leader-member exchange has a significant effect on productivity

Health Protocol Compliance with Productivity

Research conducted by [49] shows that high compliance with health protocols has a significant effect on work productivity compared to poor adherence to health protocols. Ohrnberger et al. [49] also stated that poor implementation of the Covid-19 protocol would affect productivity with three different impacts, namely that someone who is infected will get sick and be treated with both mild and asymptomatic symptoms. Second, it has an impact on death which will result in loss of productivity and also non-health reasons that will cause loss of productivity due to the application of travel ban rules.

H-7: Health protocol compliance has a significant positive effect on work productivity.

H-8: Health protocol compliance becomes a mediator of the influence between psychological capital, work stress, and leader-member exchange on productivity.

2 Methods

Research variables in this research are 3 Independent variables (psychological capital, work stress, and leader-member exchange), 1 Mediation variable (health protocol compliance), & 1 dependent variable (productivity). The Measurement indicator scale for this research is a 6-item Likert scale. The Research scope is PT KAI DAOP 1 Jakarta employees who actively worked during the Covid-19 pandemic, with a total of 391

responses collected. The period of this research is from March-May 2022. Data collection is carried out through an online questionnaire in the form of a google form. After that, the data collected were analyzed using SPSS and Lisrel software.

3 Results and Discussion

This research model meets the goodness of fit value with an RMSEA value of 0.060, GFI 0.92, NFI 0.96, and CFI 0.97. So it can be said that this model is a fit model. In this study, male respondents outnumbered females by 323 to 82.6%. Of the respondents' age, 25.8% respondents belong to the age group of 31–35 years, with a total of 101 respondents. Next, the highest level of positions is “Pelaksana”, as many as 193 people or 49.4%. The most work units that filled out the questionnaire were LAA (listrik Aliran Atas) units, with as many as 76 respondents with a percentage of 19.4%. Furthermore, employees with more than ten years of service outnumber those without, accounting for 210 (or 53.7%). High school education is the most common educational characteristic, with 258 respondents (66%). 62.1% of the respondents have 1–3 people as dependents. Then the marital status is dominated by the married status of 86.7%

The results of the tests of hypotheses indicated that Psychological capital has a significant positive effect on protocol compliance. In this study, the highest psychological capital indicator regarding “hope”, which in depth discusses how employees of PT KAI in the DAOP 1 Jakarta area have many ways to complete their work and will have good compliance with Covid-19 Workplace Health Protocol Implementation. The many ways that employees have to complete their work (working from home, wearing masks in the office, keeping a distance) can help employees to be able to implement health protocol rules while still doing their jobs.

This study's results agree with those of He et al. [50], who claim that the self-efficacy dimension in the psychological capital variable can cause employees to want to work as safely as possible, one of which is by following health protocols in the workplace. Furthermore, according to Ye et al. [40], the resilience dimension has the greatest influence on safety or dealing with uncertain situations such as the Covid-19 pandemic.

Workload, as a problem in the company, has implications for employee performance and growth in a competitive company environment. In this study, the highest work stress indicator is overtime which discusses in depth how ignorant employees are of the tasks in their work during the pandemic, which shows PT KAI employees in the DAOP 1 Jakarta area feel the greatest workload when employees do not understand the tasks at work. In this study, it is known that employees of PT KAI in the DAOP 1 area are more related to their work duties during the pandemic stating that the workload of employees is low. Based on the hypothesis test, the low workload on employees is in accordance with the employee health protocol. However, because employees in this study adhere to health protocols to a high degree, the hypothesis is not supported by the data (Fig. 1).

This study's findings contradict those of Jacobs and Pienaar [42], who found that under pressure, workers exhibit non-compliant safety behavior. Furthermore, Probst and Brubaker [51] stated that excessive workload on employees, which can cause anxiety, can cause employees to disregard safety rules in order to maintain or improve their performance (Fig. 2).

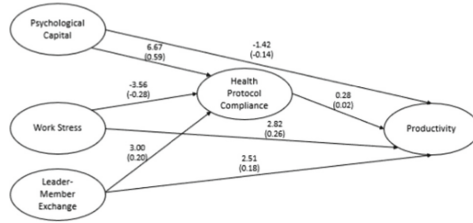


Fig. 2. Hypothesis Test

According to the findings of hypothesis testing, the leader-member exchange has a significant positive effect on protocol compliance. Employees at PT KAI were found to have the highest levels of leader-member exchange when it came to positive feelings toward their superiors, as evidenced by their eagerness to follow their superiors’ instructions in all matters pertaining to company policy, including policy pertaining to the use of the Covid 19 health protocol.

The findings of this study agree with those of Donovan et al. [52] and Yang et al. [40], who discovered that LMX is significantly positively related to safety behavior.

According to the findings of hypothesis testing, psychological capital has no effect on productivity. In this study, the individual factor is how much employees’ expectations do not increase employee productivity. High employee productivity can be owned by employees without qualified psychological capital.

The findings of this study contradict the findings of Luthans et al. [37], who found that psychological capital has a positive and significant effect on employee productivity in general.

According to the findings of hypothesis testing, work stress has a significant positive effect on protocol compliance. In this study, the highest work stress an indicator is an overtime which discusses in depth how ignorant employees are of the tasks in their work during the pandemic, which shows PT KAI employees in the DAOP 1 Jakarta area feel the greatest workload is when employees do not understand the tasks at work. The quantity of work that can be completed by employees increases and directly increases the productivity of PT KAI’s employees in the DAOP 1 area of Jakarta. In this study, it is known that employees of PT KAI in the DAOP 1 area are more aware of their work duties during the pandemic, which indicates that the workload of employees is low. Based on the results of hypothesis testing, employees of PT KAI Region DAOP 1 Jakarta who have a low workload will be more productive at work. In line with this study, it was found that the productivity of PT KAI’s DAOP 1 employees was high.

The findings of this study are consistent with the findings of Sari et al. [44], who found that work stress has a significant negative impact on employee productivity and that high workloads have an impact on low employee performance.

According to the findings of hypothesis testing, the leader-member exchange has a significant positive effect on productivity. In this study, the highest indicator of leader-member exchange is feeling happy related to superiors who deeply discuss good relations between employees and superiors can support employee work productivity. The pleasure

felt by employees when working with their superiors makes employees motivated to work more actively, such as taking overtime/additional work.

The results of this study are in line with those of Chen et al. [48] and Thompson et al. [47], who discovered that leader-member exchange had an advantageous impact on worker productivity. Employees receive various benefits and opportunities from a high-quality leader-member exchange, such as work performance rewards, promotions, salary increases, career development support, and a strong sense of motivation.

From the results of hypothesis testing, it was found that health protocol compliance was not significant to productivity. The presence of overtime on employees in this study is not related to compliance with the Covid-19 health protocol carried out by employees; however, there is a possibility when employees' overtime does not comply with the health protocol.

From the results of the Sobel test, it is known that health protocol compliance has no mediating effect on psychological capital, work stress, or leader-member exchange on productivity.

4 Conclusion

Psychological capital (hope) and a sense of pleasure working with superiors can help increase workplace compliance with the Covid-19 health protocol, whereas excessive workload on employees can reduce workplace compliance with the Covid-19 health protocol implementation. Workload and the pleasure of working with superiors can boost employee productivity at work, whereas psychological capital and protocol compliance have no effect. Health protocol compliance has no mediating effect on psychological capital, work stress, or leader-member exchange on productivity. Psychological capital has a significant positive effect on applying protocol compliance rules within PT KAI in the DAOP 1 Jakarta area. On the other hand, Psychological capital does not have a significant effect on the productivity of PT KAI employees in the DAOP 1 Jakarta area. This is because PT KAI, as a transportation company, must always provide the best service so that employees are required to have high productivity regardless of the conditions that occur to their employees. Work stress has a significant negative effect on the implementation of protocol compliance rules within PT KAI in the DAOP 1 Jakarta area. Work Stress has a significant positive effect on the productivity of PT KAI employees in the DAOP 1 Jakarta area. Leader-member exchange has a significant positive influence on the implementation of protocol compliance within PT KAI in the DAOP 1 Jakarta area. In addition, the leader-member exchange has a significant positive effect on the productivity of PT KAI employees in the DAOP 1 Jakarta area. Protocol compliance does not have a significant effect on the productivity of PT KAI employees in the DAOP 1 Jakarta area. In addition, protocol compliance fails to mediate the influence between psychological capital, work stress, and leader-member exchange. The research sample is too homogeneous because it only comes from one operational area unit, namely the Jakarta operational area. Limitations related to the situation and rules related to the Covid-19 pandemic. The lack of literature related to the application of health protocols in the realm of HR management. The unequal distribution of the respondent's work unit questionnaire at PT KAI in the DAOP 1 Jakarta area causes the proportion of data

between employees who work in the back office and employees who work in the field to be unbalanced.

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