

## Barriers to COVID-19 Workplace Safety among Indonesian Office Workers: A Qualitative Study

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### ABSTRACT

**Introduction:** Since the first case of COVID-19 was detected in Indonesia, the government has implemented Large-Scale Social Restrictions to control the spread of the disease. However, these restrictions have harmed the economy. To address this, the government has introduced a new normal policy to restore activities while managing the risk of transmission. The government has adopted WHO guidelines through Minister of Health Decree No. 238 of 2020 to ensure COVID-19 workplace safety. This article aims to explore the barriers to COVID-19 workplace safety among Indonesian office workers. **Methods:** This qualitative research was conducted in DKI Jakarta and Surabaya from September to October 2020. In-depth interviews and observations were conducted with 22 informants selected purposively. Thematic analysis was used, drawing on the Social-ecological Model (SEM) theory. **Results:** At the intrapersonal level, fear and perception barriers impact preventive actions against COVID-19. At the interpersonal level, peer influence and perceptions of the work environment affect adherence to office policies. At the organizational level, employee behavior is influenced by socializing, rules, and workplace amenities. Lastly, public policy enforcement is vital at the macro level to reduce risky behaviors among office workers. **Conclusion:** Implementing comprehensive protocols across different levels is crucial to creating COVID-19 workplace safety. This requires increased public awareness and consistent enforcement, including strengthening organizational policies.

**Keywords:** barriers, COVID-19, office workers, workplace safety

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### INTRODUCTION

In March 2020, Indonesia detected its first Coronavirus Disease 2019 (COVID-19) cases, leading to a widespread outbreak with cases surging. By August 2020, Indonesia recorded 1,000 new cases daily (Nugraha *et al.*, 2020). The Indonesian government implemented various policies to combat the virus, including Large-Scale Social Restrictions or “Pembatasan Sosial Berskala Besar (PSBB).” PSBB, based on Government Regulation No. 21 of 2020, restricted population movement, allowing only specific sectors to operate. Most workers had to work from home, and students switched

to online learning (Republik Indonesia, 2020). However, despite PSBB measures, COVID-19 cases did not significantly decline. Conversely, these restrictions adversely affected Indonesia's economy, exacerbating financial challenges dating back to 1998 (Fadly, 2020; Sparrow, Dartanto and Hartwig, 2020). Economic problems, unemployment, social disparities, and mental health concerns have arisen due to employment sector restrictions (Kniffin *et al.*, 2020). Continuation of these restrictions could further harm the economy, necessitating government intervention to safeguard it.

In June 2020, the government introduced a new normal policy, allowing people to resume activities outside their homes, including returning to offices. This policy aims to restore normalcy while reducing the risk of COVID-19 transmission (Jamaludin *et al.*, 2020). Its goal is to prevent prolonged

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financial crises from the pandemic's economic impact (Muhyiddin, 2020). However, the return to activities, including office work, must be carefully planned, as it can elevate COVID-19 transmission risks. Workplace outbreaks have a more substantial impact than those originating from household cases, affecting both industries and communities (Murti *et al.*, 2021).

To prevent COVID-19 transmission at workplaces, the WHO created guidelines outlining standard health protocols (WHO, 2020). The Indonesian government adopting the WHO guidelines via Minister of Health Decree No. 238 of 2020 to create COVID-19 workplace safety. This decree mandates that office management provide facilities for COVID-19 prevention and educate employees on health protocols. Workers must adhere to mask-wearing, social distancing, and hand hygiene at work, at home, and during their commutes (Indonesia Ministry of Health, 2020).

The risk of transmitting COVID-19 in the workplace can occur, especially in a closed room. A study in South Korea of call center workers found that the transmission of COVID-19 occurs because the space is quite crowded, so it is difficult for workers to keep their distance, and there is long enough contact between workers in a closed room (Park *et al.*, 2020). In Vietnam, one-third of COVID cases come from work clusters (Huynh *et al.*, 2020).

A study discusses how the Indonesian government and its subordinate bodies have broadly defined an essential legal and regulatory framework for implementing occupational safety and health for workers (Anggriawan, 2020). Several studies have explained the application of health protocols in the workplace, such as how to technically design a work environment and workspace to prevent COVID-19 (Sari and Budiyaniti, 2020) and how management applies rules and implements rules for employees during the COVID-19 period (Dantjie, Setyaningsih and Nurjazuli, 2020).

In light of the above, this study aims to explore the barriers to COVID-19 workplace safety among office workers in Indonesia, focusing on Jakarta and Surabaya. Jakarta and Surabaya were chosen as the study locations because they are big city in Indonesia with a higher prevalence of COVID-19 cases among office workers in the country. Moreover, this study will benefit by evaluating the obstacles in office workers' safety implementation and providing insights for policymakers.

## METHODS

This study design was qualitative research, with in-depth interviews and observations as methods to gather data. The research was conducted in Jakarta and Jawa Timur province in September and October 2020. Office management was also interviewed to understand their workplace prevention policies. Observations assessed the implementation of COVID-19 preventive measures in four key areas: office conditions, adherence to social distancing, availability of hygiene facilities, and employee compliance with COVID-19 guidelines.

The study included 21 informants, both male and female, who were employed in either the private or government sector. There were 10 informants from Jakarta and 12 from Surabaya. Out of the total, 13 were female and 8 were male. Additionally, 11 informants worked in government or state-owned enterprises, while 10 were from the private sector. The informants held various roles such as telemarketers, marketing professionals, field officers, lecturers, and teachers.

The informants in this study were selected from a previous research project titled the "Study of Social Distancing and Handwashing Compliance," which involved 9,674 respondents. From this survey, we selected individuals who met specific criteria: they resided in Jakarta or Surabaya and were either government institution employees or private company employees. Additionally, we considered their compliance scores in social distancing or



Figure 1. Barriers to COVID-19 Workplace Safety among Office Workers according to Social Ecological Model

handwashing from the previous study, selecting those with either high or low compliance scores.

Informants, primarily comprised of office workers (excluding healthcare or banking), were purposefully selected for in-depth interviews focused on COVID-19 prevention measures. Observations adhered to guidelines assessing worker practices and office management's support for COVID-19 workplace safety. The study occurred in two government offices, one private office in Jakarta, and two government and two private offices in Surabaya.

Thematic analysis methods were used in this study. Thematic analysis is a method for analyzing qualitative data that involves searching through data collection to identify, analyze, and report recurring patterns. It is a technique for representing data but involves interpretation in selecting codes and developing themes (Mezmir, 2020).

After preparing the in-depth interviews in a verbatim transcription, the data analysis followed the six-step process for thematic analysis (Braun *et al.*, 2019). Firstly, the data underwent multiple readings to gain familiarization. Then, researchers assigned codes to categorize the data into specific segments. The researcher then extracted themes from the interview transcripts and organized them and pertinent quotes into a matrix. This matrix validated the alignment between the data and identified themes. Finally, the research findings were presented based on these themes (Braun *et al.*, 2019; Fona, 2023). All of the analytical process went to verification procedures with the involvement of all researchers as well as referential adequacy (Scharp and Sanders, 2019).

This study analyzed COVID-19 workplace safety among office workers using the social-ecological model (SEM) theory. This theory examines social, cultural, and environmental health behavior (Van Kasteren, Lewis and Maeder, 2020). According to the social-ecological model theory, health behavior is influenced at multiple levels, including the individual (biological, psychological), interpersonal (social, cultural), organizational, community, physical environment, and policies (Hu *et al.*, 2021). The ethical approval for this research was obtained from the Health Ethics Commission, Ministry of Health of Indonesia, under approval number LB.02.01/2/KE.607/2020.

## RESULT

There were 21 participants eligible and willing to be interviewed. The informants comprised 12

males and nine females, employed in both the government and private sectors in the provinces of Jakarta and East Java, with ages ranging from 24 to 55.

### Intrapersonal Level

The first and smallest scope of SEM is the intrapersonal level, which encompasses an individual's internal factors such as knowledge, attitudes, beliefs, and skills. When it comes to employee compliance with health protocols, intrapersonal factors such as fears, vulnerabilities, and perceptions of barriers play a significant role.

For example, the fear of contracting COVID-19 can motivate workers to adhere more strictly to health protocols. For example, Fi said,

*“That is not allowed. I don't dare to take off the mask in the room.”*

The fear extends beyond the workers' concerns about spreading the virus to their families, particularly older family members who are at risk. Following health protocols gives workers confidence in reducing the risk of transmitting COVID-19 to their loved ones at home.

**Table 1.** Characteristics of Informants

| Anonymous | Gender | Age | Province  | Sectors    |
|-----------|--------|-----|-----------|------------|
| Ar        | M      | 33  | Jakarta   | Government |
| Je        | F      | 34  | Jakarta   | Government |
| Er        | M      | 36  | Jakarta   | Government |
| Da        | M      | 45  | Jakarta   | Government |
| Vi        | F      | 36  | Jakarta   | Government |
| Na        | M      | 38  | Jakarta   | Private    |
| In        | F      | 43  | Jakarta   | Private    |
| Sl        | M      | -   | Jakarta   | Private    |
| Nu        | F      | 24  | Jakarta   | Private    |
| An        | M      | 27  | Jakarta   | Private    |
| Ri        | F      | 38  | East Java | Government |
| Fi        | M      | 55  | East Java | Government |
| Ich       | F      | 34  | East Java | Government |
| El        | F      | 25  | East Java | Government |
| Fe        | M      | -   | East Java | Government |
| Du        | M      | -   | East Java | Government |
| Vi        | F      | -   | East Java | Private    |
| Iry       | F      | 38  | East Java | Private    |
| Mu        | F      | 35  | East Java | Private    |
| Sa        | F      | 36  | East Java | Private    |
| Ra        | F      | -   | East Java | Private    |

*“During the pandemic, I always wear a medical mask to protect myself because I also have parents with congenital diseases. It's okay so that we can reduce the risk, so I wear a mask.” (Va)*

The perception that following health protocols is challenging hinders worker compliance. Some find preventive measures uncomfortable; masks can impede speech and cause breathing difficulties, while hand sanitizer can irritate the skin. Workers worry that these discomforts might reduce their productivity over time.

*“It's true that sometimes when I make a call, I have to catch my breath and adjust my voice, so sometimes when I wear a mask, my pronunciation is not clear, so sometimes I take it off.” (Nu)*

*“If you wear a mask, it's hard to breathe, so instead of dying from shortness of breath, it's better not to wear a mask. The hand sanitizer feels hot on the hand, making it uncomfortable.” (Mu)*

In addition to mask-wearing, maintaining physical distance is challenging for some workers. Limited workspace and job requirements, like physical contact such as handshakes, make it difficult to maintain distance.

*“Then it must be a close distance because the room is only that big.” (Je)*

*“It's hard to do, isn't it... if it's a habit (keeping your distance), it might be difficult at first, especially since I work in the field and must shake hands with people.” (El)*

### **Interpersonal level**

Another influential scope is the interpersonal level, which encompasses social networks like family, friends, and coworkers. Within this level, peer or coworker influence and perceptions of the work environment impact workers' COVID-19 preventive behavior in the office. This study reveals that the actions of those around them affect the COVID-19 preventive behavior of office workers. Some informants mentioned struggling to maintain distance when with close friends who are coworkers and occasionally removing their masks unintentionally when socializing with colleagues.

*“Yes, the protocol is being carried out; it's just that you forget when you are with a friend. We*

*still don't keep our distance, especially from close friends.” (Ar)*

One informant also noted a similar trend among students at their teaching institution. While most students wear masks before class, upon seeing friends remove their masks upon entering the classroom, they follow suit.

*“When they enter class, all of them wear masks, but as soon as they enter the class, someone immediately takes off their masks, then the others follow suit.” (Mu)*

The influence of the surrounding environment can positively impact workers' adherence to health protocols. When respondents observe colleagues consistently wearing masks, it encourages them to do the same. For example, Ic said,

*“Fortunately, the people at my place are obedient; no one takes off their masks except for eating.”*

Some informants stated that a warning from a co-worker could make a person more disciplined in wearing a mask. To exemplify, S1 said,

*“Now I'm more disciplined. If friends are not disciplined, we will remind them.”*

Besides coworkers, the office environment conditions also influence workers' behavior. Some workers find the implementation of COVID-19 prevention protocols at their workplace compelling. Additionally, the office manager's support, through facilities and warnings for those not adhering to protocols, plays a role in implementing these measures.

*“In my division, it's been effective because I saw the leader finally supported it. It's like there's a protocol. Sometimes, if someone forgets, such as not wearing a mask, we are reprimanded.” (Vi)*

### **Organizational Level**

Office management, pivotal in ensuring workplace safety, should offer employees more COVID-19 transmission and prevention guidance. Nonetheless, this study revealed that workers did not receive dedicated COVID-19 training from office managers. Instead, they depended on information

shared through an official institutional WhatsApp group, where leaflets and formal letters from higher management were forwarded. Additionally, COVID-19 infection posters and stickers were displayed throughout the office.

*“We never socialize the information of COVID-19 to the workers. We only give the information through the WhatsApp group. Reward and punishment were also unavailable.” (Ar)*

*“The socialization is only through the form letter. Posters are also put on such as in the security office or reception desk.” (Sl)*

The office manager has put in place COVID-19 prevention protocols in line with Minister of Health Decision No. 328, which sets out guidelines for workplace prevention. However, a private sector institution was not aware of this requirement, which mandates the formation of a COVID-19 prevention task force. This study revealed that several institutions in Jakarta and East Java did not have such task forces, and some were ineffective in preventing COVID-19. For example, an employee at a government office mentioned having a task force, but it was non-functional and only shared COVID-19 information through the office's WhatsApp group.

*“The institution chooses the chief of the task force. Every institution unit has two people as the task force members, but it doesn't work. I have never seen the workforce members meeting. I don't know the function of the task force. I know that the only chief of the task force is giving the message about COVID-19. Just the chief works, others not.” (Ar)*

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he absence of rewards and penalties for health protocol violations has hindered office compliance. Offenders typically receive only a warning from their supervisor or colleagues when breaching health protocol regulations.

*“If someone doesn't wear a mask, they will only be reprimanded. There is no COVID-19 task force here. Only reprimanded; do not wear a mask. We wear masks because of each other's awareness, so there is no punishment. Because from the personnel bureau itself, there are no strict sanctions, only an appeal.” (De)*

Minister of Health Decision No. 328 mandates workplace facilities for COVID-19 prevention, but

not all institutions are in compliance. Some fail to provide masks as required, and the masks provided are insufficient for a month's use. Additionally, several Jakarta and East Java institutions lack COVID-19 prevention task forces, and those that do exist are often ineffective.

Hand washing is essential, yet not all offices have conveniently located facilities. Employees often skip hand washing due to the distance to the facilities, relying on hand sanitizer instead. Maintaining social distance is crucial, but many institutions lack space and have poor layouts. Some offices have implemented rotating work-from-home systems to facilitate employee distancing.

*“There is no working table setting in the office. We sit in the distance if we are together.” (Am)*

The institution should also provide supplements and vitamins to keep the employees healthy during the pandemic. However, not all institutions supplied the supplements and vitamins to the workers for one month.

Respondents believed that if the institution provided all necessary facilities for COVID-19 prevention protocols, it would promote worker awareness and discipline in adhering to these protocols.

*“Maybe it has been conditioned at the institutional level so that the individual level is more influential. There are billboards—massive instructions. Facilities are also provided. So, awareness to apply health protocols can be formed.” (Er)*

## Public Policy

The government issued Ministerial Decree No. 328 of 2020 to provide guidelines for daily tasks while maintaining social/physical distance and hygiene for workers. This study found that government agencies are generally well-informed about the decree, but some private companies in Jakarta lack knowledge of it. For example, an office manager at a private company in Jakarta mentioned that they obtained COVID-19 prevention guidelines from another company's HR department.

*“So, we made it ourselves, so we have what it's called. There are HR friends in companies that are bigger than us. We have documents, adjust them, use*

the template, and continue to change them according to our company.” (Mo)

“There is no circular because it uses a circular from the secretariat general. In the beginning, we did the socialization; before the WFH, we asked the employees what to do here. Then follow the circulars of the secretary general and the director general; the therapists are there.” (JI)

## DISCUSSION

The study found that office workers face several barriers when trying to implement COVID-19 workplace safety measures. These barriers are categorized according to the Social Ecological Model (SEM) theory, which includes intrapersonal, interpersonal, organizational, and policy-level factors.

### Intrapersonal Level

According to the finding based on the structural equation modeling (SEM) theory, focusing on intrapersonal characteristics such as the knowledge, attitudes, and perceptions of office workers can influence their adherence to health protocols due to concerns about the transmission of COVID-19. This aligns with previous studies in South Korea which found that a high COVID-19 fear score was associated with increased mask usage, handwashing, and social distancing (Jang, 2022). Similar studies in Turkey and Florida State (USA) also demonstrated that vulnerability and fear significantly increased engagement in preventive behavior during the pandemic (Yıldırım, Geçer, and Akgül, 2021; DeDonno *et al.*, 2022). Additionally, a study in Iran and Indonesia found a positive and significant relationship between fear of COVID-19 and engagement in preventive behavior (Charkazi *et al.*, 2021; Lolita and Ikhsanudin, 2022).

On the other hand, non-compliant office workers in this study indicated that wearing masks can hinder performance due to discomfort, difficulty speaking, and breathing issues. They also mentioned the challenges of using hand sanitizers and maintaining social distance, which can be difficult in their profession due to space limitations and work requirements (e.g., shaking hands). The findings of this study on non-compliant office workers regarding adherence to COVID-19 preventive protocols are consistent with another research. For example, a study in Jakarta, Indonesia, found that workers' COVID-19 risk perception influenced their

adherence to preventive behavior (Djuningsih and Samputra, 2021). Additionally, Tong *et al.*'s (2020) research revealed that fear affected compliance with mask usage but had less impact on social distancing behavior. Another previous study of healthcare workers in Dutch general practices found that behavior is influenced by an individual's perceptions of the disease severity and perceived susceptibility combined with perceived benefits and barriers to the behavior (Houben *et al.*, 2024).

The study revealed that the perceptions of office workers played a significant role in hindering the implementation of health protocols. Previous research by Hill *et al.* (2022) on perceived barriers found that out of 327 people who only sometimes complied with social distancing recommendations, 76% found it challenging to implement. Additionally, 31% admitted to forgetting to keep their distance. In terms of mask-wearing, 267 people confessed to not always wearing masks outside their homes. Among them, 31% felt uncomfortable, and 29% said they forgot to wear masks (Hill *et al.*, 2022). This is consistent with the finding that the behavioral perspectives of workers toward the COVID-19 pandemic is affected due to mental health effects. Workers who perceive the severity of COVID-19 disease, its effects and its symptoms are more concerned (Khaday, Li and Dorloh, 2023).

### Interpersonal Level

Aside from individual considerations, the research revealed that interpersonal level such peer relationships. also play a role in employees' adherence to COVID-19 health protocols. This study found two significant influences among office workers. Seeing colleagues consistently wearing masks can positively influence respondents to do the same. However, office workers may find it challenging to maintain distance and may unintentionally remove masks while socializing with colleagues, negatively impacting interpersonal dynamics. These findings support the earlier discovery that people's behavior can be influenced by others' thoughts, actions, and surroundings (Whiteman *et al.*, 2020).

Social factors and groups, such as the workplace and coworkers, have a significant impact on shaping people's behavior, either positively or negatively. The work environment, including both physical and non-physical aspects, directly or indirectly influences individuals and their work. Coworkers can either encourage or hinder the adoption of new

behaviors (Fattahi, Seproo and Fattahi, 2022). For example, a study in Purwokerto, Indonesia, found that workers were more likely to practice physical distancing if their coworkers also adhered to these rules (Indraswari, Riani and Ambarwati, 2021). Research by Andriyanto, Sariatmi and Suryosaputro (2022) also demonstrated a significant relationship between the work environment and compliance with infection prevention measures. Another study found that the interpersonal influence aspects significantly affected commitment, as some respondents still needed to remind by family and friends, 36% and 65% respectively. Therefore, they kept enough pandemic-related materials around the home (e.g., masks, hand sanitizers, hand soap and disinfectant) (Koerniawan and Frisca, 2023).

### Organizational Level

In this study, organizational efforts to create a safe workplace environment during the COVID-19 pandemic were examined. These efforts included the formation of a task force for COVID-19 prevention. The study found that government office workers already had task forces, but their impact did not benefit the staff. The provision of work amenities such as masks, hand sanitizer, handwashing facilities, and vitamin delivery was also observed at the organizational level, but more support was needed to meet the workers' needs.

Organizational factors were found to be crucial in influencing workers' compliance with health protocols in the workplace. One important role of organizations was to disseminate information about health protocols for preventing COVID-19 through various media channels. The study revealed that institutions used posters and social media platforms like WhatsApp to provide information about COVID-19 and implemented the COVID-19 prevention protocol in accordance with Health Minister's Decree No. 328/2020. These findings align with a study by Fernando (2021), which found that posters with high threat and efficacy significantly influenced workers' preventive behavior and compliance with COVID-19 health protocols in the workplace due to the fear of transmission and death. A study in Thailand also found that establishing a pandemic prevention committee, promoting internal communication on COVID-19 prevention via media and specifying safety rules and procedures for COVID-19 prevention at the workplace would significantly impede the spreading

of the virus COVID-19 (Khaday, Li and Dorloh, 2023).

Previous study found a correlation between the availability of facilities and workers' compliance with health protocols. Workers who have access to sufficient office facilities and support are more likely to adhere to health protocols, while those who report inadequacies in the facilities and resources provided by office management are more likely to be non-compliant (Nuriati *et al.*, 2021). The implementation of health promotion on PHBS (Perilaku Hidup Bersih Sehat) in the workplace was quite effective in increasing workers PHBS. The implementation of PHBS in the workplace depends on the understanding and attitude of workers. These results are closely related to workers good knowledge about PHBS in the workplace (85%) and their attitudes toward PHBS in the workplace (67.5%) (Kurniyati, Ma'rufi and Utami, 2023). This also in line with the theory of the health belief model, suggesting that the possibility of an individual taking preventive action depends on the beliefs they have (Jose *et al.*, 2021).

Another study in the Netherlands also revealed that the facilities from the management teams and the risk management in the company contribute a significant role in addressing COVID-19 spread (Hou *et al.*, 2021). Similarly, a study in Hong Kong showed that institutions provide workplace guidelines, and their employee tends to have higher compliance with COVID-19 preventive behavior (Wang *et al.*, 2021).

In addition, another study also found that the limitation of resources, such as financial resources, infrastructures, and personnel, was a key contributor to the hindrances faced by the institutions to escalate the employees' awareness and behavioral change through socialization, education, and enforcement (Lestari *et al.*, 2022).

### Public Policy

Public policy is designed to address emerging issues through the direct or indirect influence of societal institutions. In this study, we examine how government regulations aimed at preventing COVID-19 have impacted workplace safety. The government issued Health Minister's Decree No. 328 of 2020, which provides guidelines for preventing COVID-19. Our findings indicate that government agencies generally have more information compared to private workers, who require more guidance from

their employers and should be informed about the Health Minister's Decision.

However, according to the regulations set by the Minister of Health, the offices were required to adhere to government regulations and guidelines. Therefore, the institutional structure involved in policymaking must facilitate the sharing of information. In this context, institutions play a role not only administratively, but also in understanding and mitigating conflicts between jurisdictions and organizational boundaries. The success of a policy is determined by how people act in accordance with it (Roziqin, Mas'udi and Sihidi, 2021).

Additionally, results revealed that social media and website have important role in shaping risk perception in the community. Stressing risk perception and efficacy beliefs prevention message will increase people to practice preventive behaviors (Boulos and Hassan, 2023).

The COVID-19 pandemic has taught humanity valuable lessons, particularly the importance of being prepared for future health crises. The pandemic was and still is perceived as a unique crisis. The COVID-19 exceptionalism has seemed to create 'a new normal' that we all need to learn to live with the new normal entails a more central role for public health in the building of preparedness but more importantly in the promise to promote better integration of health in all policies perspectives within and outside public health (Boas and Davidovitch, 2022). Indonesia lacks a well-established health system for preventing and managing health crises, especially in workplace environments. This research aims to identify the barriers to COVID-19 workplace safety among office workers using the SEM theory. By addressing these barriers, governments can better prepare to effectively handle future health crises, especially in workplace settings.

The findings of this study draw the attention of health policymakers to the importance of increasing public awareness, especially public awareness in the office or work environment, in behaving as a form of prevention of COVID-19 disease. Furthermore, this study shows that there is still a need for regular implementation and existing policies, so many office employees are negligent or carry out behaviors at risk of disease transmission.

The limitation of this research is that the research was only conducted in two major urban locations in Indonesia and did not look at how workers work in suburban and rural areas. Due to that reason, the types of work included in this

research are also minimal. Future research should focus on investigating COVID-19 preventive behaviors across a broader range of work environments, including those in suburban and rural areas. This would involve a more diverse set of occupations to better understand the varying levels of risk and compliance with health measures.

## CONCLUSION

In conclusion, there are several factors that hinder Indonesian workers from effectively implementing COVID-19 workplace safety. These obstacles can be personal, stemming from individual beliefs or feelings, or influenced by the surrounding environment and social interactions. Additionally, organizational shortcomings, such as weak communication from management, unclear policies, and inadequate facilities, further contribute to the issue. As a recommendation, the implementation of policies to create COVID-19 workplace safety must be strengthened at the organizational or institutional level. This can be achieved by maximizing the function of the COVID-19 task force, implementing consistent policies, ensuring the full support of facilities, and including formal and social sanctions in implementing health protocols.

## CONFLICT OF INTEREST

There is no significant competing financial, professional, or personal interests that might have affected the performance.

## AUTHORS' CONTRIBUTION

All authors declare that they are participating actively in research and article writing and partly responsible for the content of writing, including in the preparation and writing of concepts, designs, analysis, or revision of the article. SH conceptualization, methodology, writing, and data analysis; SN investigations, writing, and data analysis; YF writing, editing, and data analysis; RI writing, editing, and data analysis; AK writing and data analysis; JK writing and editing.

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## REFERENCES

- Andriyanto, W., Sriatmi, A. and Suryosaputro, A. (2022) 'Individual and Organizational Factors with Compliance with Infection Prevention and Control Standards in Public Health Center in The COVID-19 Pandemic', *International Journal of Health, Education and Social (IJHES)*, 5(6).
- Anggriawan, R. (2020) 'Responding to COVID-19: Indonesian Occupational Health and Safety Policy for Corporate Compliance', *Journal of Industrial Hygiene and Occupational Health*, 5(1), p. 50. <https://doi.org/10.21111/jihoh.v5i1.4669>
- Boas, H. and Davidovitch, N. (2022) 'Into the "New Normal": The Ethical and Analytical Challenge Facing Public Health Post-COVID-19', *International Journal of Environmental Research and Public Health*, 19(14), pp. 1-12. <https://doi.org/10.3390/ijerph19148385>
- Boulos, D.N.K. and Hassan, A.M. (2023) 'Using the Health Belief Model to Assess COVID-19 Perceptions and Behaviours among a Group of Egyptian Adults: A Cross-sectional Study', *BMC Public Health*, 23(1), pp. 1-11. <https://doi.org/10.1186/s12889-023-16513-x>
- Braun, V. et al. (2019) 'Thematic analysis', in *Handbook of Research Methods in Health Social Sciences*, pp. 843–860. [https://doi.org/10.1007/978-981-10-5251-4\\_103](https://doi.org/10.1007/978-981-10-5251-4_103)
- Charkazi, A. et al. (2021) 'Association of fear of COVID-19 and preventive behaviors (PB) against COVID-19 in Iran', *Psychiatry*, 18(3), pp. 169–175. <https://doi.org/10.5603/PSYCH.a2021.0016>
- Dantjie, P., Setyaningsih, Y. and Nurjazuli (2020) 'Safety and Health Management Commitment and Implementation of COVID-19 Prevention at Manufacture Workplace Environment', in *E3S Web of Conferences*. EDP Sciences. <https://doi.org/10.1051/e3sconf/202020212015>
- DeDonno, M.A. et al. (2022) 'Perceived Susceptibility and Severity of COVID-19 on Prevention Practices, Early in the Pandemic in the State of Florida', *Journal of Community Health*, 47(4), pp. 627–634 <https://doi.org/10.1007/s10900-022-01090-8>
- Djuningsih, R.F. and Samputra, P.L. (2021) 'The Influence of Risk Perception on Worker Discipline in DKI Jakarta in Implementing the Protocol Covid-19 Health Based on the Health Belief Model Approach', *Jurnal Penelitian Kesehatan Suara Forikes*, 12(4), pp. 415–421.
- Fadly, F. (2020) "The Effects of Human Mobility Restriction During Covid-19 Pandemic on Indonesia's Economy", *Ferdian. Kajian Ekonomi Keuangan*, 4(3), pp.263-280. <https://doi.org/10.31685/kek.V4.3.678>
- Fattahi, H., Seproo, F.G. and Fattahi, A. (2022) 'Effective Factors in People's Preventive Behaviors during Covid-19 Pandemic: A Systematic Review and meta-synthesis', *BMC Public Health*, 22(1), pp. 1-12. <https://doi.org/10.1186/s12889-022-13621-y>
- Fernardo, E. (2021) 'Experimental Study to Improves Covid-19 Health Protocol Compliance with High Threat and High Efficacy Poster', *Jurnal Komunikasi*, 13(2), p. 184. <https://doi.org/10.24912/jk.v13i2.11383>
- Fona, C. (2023) 'Qualitative data analysis: Using thematic analysis', in *Researching and Analysing Business: Research Methods in Practice*, pp. 130–145. <https://doi.org/10.4324/9781003107774-11>
- Hill, L.M. et al. (2022) 'Barriers to and Facilitators of COVID-19 Prevention Behaviors Among North Carolina Residents', *Health Education and Behavior*, 49(2), pp. 231–241. <https://doi.org/10.1177/10901981221076408>
- Hou, H. (Cynthia) et al. (2021) 'A study on office workplace modification during the COVID-19 pandemic in The Netherlands', *Journal of Corporate Real Estate*, 23(3), pp. 186–202. <https://doi.org/10.1108/JCRE-10-2020-0051>
- Houben, F. et al. (2024) 'Behavioural Determinants Shaping Infection Prevention and Control Behaviour among Healthcare Workers in Dutch General Practices: A Qualitative Study Reflecting on pre-, during and post-COVID-19 Pandemic', *BMC Primary Care*, 25(1), pp. 1-13. <https://doi.org/10.1186/s12875-024-02304-9>
- Hu, D. et al. (2021) 'Factors that Influence Participation in Physical Activity in School-aged Children and Adolescents: A Systematic Review from the Social Ecological Model Perspective', *International Journal of Environmental Research and Public Health*, 18(6), pp. 1–22. <https://doi.org/10.3390/ijerph18063147>
- Huynh, N.N.Y. et al. (2020) 'COVID-19 Clusters at Workplaces and its Transmission into Communities in Vietnam: A Novel Emerging Occupational Risk Factor at Work Due to Coronavirus Infection', *Asian Pacific Journal of*

- Environment and Cancer*, 3(1), pp. 27–33. <https://doi.org/DOI:10.31557/APJEC.2020.3.1.27>.
- Indonesia Ministry of Health (2020) Indonesia Ministry of Health.
- Indraswari, R., Riani, E.N. and Ambarwati, D. (2021) ‘Employees’ perceptions of COVID-19 transmission prevention at the workplace’, *Annals of Tropical Medicine & Public Health*, 24(01). <https://doi.org/10.36295/asro.2021.24125>
- Jamaludin, S. *et al.* (2020) ‘COVID-19 Exit Strategy: Transitioning towards a New Normal’, *Annals of Medicine and Surgery*, 59, pp.165–170. <https://doi.org/10.1016/j.amsu.2020.09.046>
- Jang, S.H. (2022) ‘Social-ecological Factors related to Preventive Behaviors during the COVID-19 Pandemic in South Korea’, *PLoS ONE*, 17(3 March). <https://doi.org/10.1371/journal.pone.0266264>
- Jose, R. *et al.* (2021) ‘Public Perception and Preparedness for the Pandemic COVID 19: A Health Belief Model Approach’, *Clinical Epidemiology and Global Health*, 9, pp. 41–46. <https://doi.org/10.1016/j.cegh.2020.06.009>.
- Van Kasteren, Y.F., Lewis, L.K. and Maeder, A. (2020) ‘Office-based Physical Activity: Mapping a Social Ecological Model Approach Against COM-B’, *BMC Public Health*, 20(1). <https://doi.org/10.1186/s12889-020-8280-1>
- Khaday, S., Li, K.W. and Dorloh, H. (2023) ‘Factors Affecting Preventive Behaviors for Safety and Health at Work during the COVID-19 Pandemic among Thai Construction Workers’, *Healthcare (Switzerland)*, 11(3). Available at: <https://doi.org/10.3390/healthcare11030426>.
- Kniffin, K.M. *et al.* (2020) ‘COVID-19 and the Workplace: Implications, Issues, and Insights for Future Research and Action’, *American Psychologist*, 76(1), pp. 63–77. <https://doi.org/10.1037/amp0000716>.
- Koerniawan, D. and Frisca, S. (2023) ‘Factors Determining Commitment to Health-Promoting Behavior During COVID-19’, *Jurnal Keperawatan Indonesia*, 26(2), pp. 97–106. <https://doi.org/10.7454/jki.v26i2.1130>.
- Kurniyati, N., Ma’rufi, I. and Utami, W.S. (2023) ‘The Analysis of Clean and Healthy Living Behavior Factors on Wood Furniture Informal Workers’, *Indonesian Journal of Occupational Safety and Health*, 12(2), pp. 194–200. <https://doi.org/10.20473/ijosh.v12i2.2023.194-200>.
- Lestari, F. *et al.* (2022) ‘COVID-19 in the Workplace in Indonesia’, *Sustainability (Switzerland)*, 14(5). <https://doi.org/10.3390/su14052745>.
- Lolita, L. and Ikhsanudin, A. (2022) ‘COVID-19 Risk Perceptions among Healthcare Workers during Early “New Behavior Norms” Phase’, *International Journal of Public Health Science*, 11(1), pp. 352–358. <https://doi.org/10.11591/ijphs.v11i1.21252>.
- Mezmir, E.A. (2020) ‘Qualitative Data Analysis: An Overview of Data Reduction, Data Display and Interpretation’, *Research on Humanities and Social Sciences [Preprint]*. <https://doi.org/10.7176/rhss/10-21-02>.
- Muhyiddin (2020) ‘Covid-19, New Normal, and Development Planning in Indonesia’, *The Indonesian Journal of Development Planning*, 4(2), pp. 240–252. <https://doi.org/10.36574/jpp.v4i2.118>.
- Murti, M. *et al.* (2021) ‘COVID-19 Workplace Outbreaks by Industry Sector and Their Associated Household Transmission, Ontario, Canada, January to June, 2020’, *Journal of occupational and environmental medicine*, 63(7), pp. 574–580. <https://doi.org/10.1097/JOM.0000000000002201>.
- Nugraha, B. *et al.* (2020) ‘COVID-19 Pandemic in Indonesia: Situation and Challenges of Rehabilitation Medicine in Indonesia’, *Acta Medica Indonesiana*, pp. 299–305. <https://www.researchgate.net/publication/344470300>.
- Nuriati, Y. *et al.* (2021) ‘Persepsi Karyawan terhadap Ketersediaan Fasilitas dan Sarana Penanganan Covid-19 di Tempat Kerja Berhubungan dengan Kepatuhan Protokol Kesehatan’, *Jurnal Kesehatan Masyarakat*, 9(4), pp. 566–575. Available at: <http://ejournal3.undip.ac.id/index.php/jkm>.
- Park, S.Y. *et al.* (2020) ‘Coronavirus disease outbreak in call center, South Korea’, *Emerging Infectious Diseases*, 26(8), pp. 1666–1670. <https://doi.org/10.3201/eid2608.201274>.
- Republik Indonesia (2020) Republik Indonesia. Indonesia: Kementerian Hukum dan HAM.
- Roziqin, A., Mas’udi, S.Y.F. and Sihidi, I.T. (2021) ‘An analysis of Indonesian government policies against COVID-19’, *Public Administration and Policy*, 24(1), pp. 92–107. <https://doi.org/10.1108/PAP-08-2020-0039>.
- Sari, U.C. and Budiyantri, R.T. (2020) ‘Workplace Requirements in New Normal Era due to COVID-19 Pandemic: Design Criteria and Health Environment Perspectives’, *Journal of Public Health for Tropical and Coastal Region*, 3(2), pp. 8–14. Available at: <http://ejournal2.undip.ac.id/index.php/jphtr/index>.

- Scharp, K.M. and Sanders, M.L. (2019) 'What is a Theme? Teaching Thematic Analysis in Qualitative Communication Research Methods', *Communication Teacher*, 33(2), pp. 117–121. <https://doi.org/10.1080/17404622.2018.1536794>.
- Sparrow, R., Dartanto, T. and Hartwig, R. (2020) 'Indonesia Under the New Normal: Challenges and the Way Ahead', *Bulletin of Indonesian Economic Studies*, 56(3), pp. 269–299. <https://doi.org/10.1080/00074918.2020.1854079>.
- Tong, K.K. et al. (2020) 'Adherence to COVID-19 Precautionary Measures: Applying the Health Belief Model and Generalised Social Beliefs to a Probability Community Sample', *Applied Psychology: Health and Well-Being*, 12(4), pp. 1205–1223. <https://doi.org/10.1111/aphw.12230>.
- Wang, K. et al. (2021) 'Unequal Availability of Workplace Policy for Prevention of Coronavirus Disease 2019 across Occupations and its Relationship with Personal Protection Behaviours: A Cross-sectional Survey', *International Journal for Equity in Health*, 20(1). <https://doi.org/10.1186/s12939-021-01527-x>.
- Whiteman, A. et al. (2020) Morbidity and Mortality Weekly Report Demographic and Social Factors Associated with COVID-19 Vaccination Initiation Among Adults Aged  $\geq 65$  Years-United States. Available at: <https://www.cdc.gov/vaccines/covid-19/clinical-considerations/>.
- WHO (2020) COVID-19: Occupational health and safety for health workers: Interim guidance.
- Yıldırım, M., Geçer, E. and Akgül, Ö. (2021) 'The Impacts of Vulnerability, Perceived Risk, and Fear on Preventive Behaviours Against COVID-19', *Psychology, Health and Medicine*, 26(1), pp. 35–43. <https://doi.org/10.1080/13548506.2020.1776891>.