

DESCRIPTION OF THE PHYSICAL ACTIVITIES OF WORKERS IN THE HYBRID ERA

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ABSTRACT

This study aims to describe the physical activity of workers during the hybrid. The method used is a narrative review with an article search based on the PCC approach on five databases: Garuda, CINAHL, PubMed, Scopus, and ScienceDirect. The studies reviewed were full-text articles published from 2019 - 2022 and published in English or Indonesian. The results showed that six pieces analyzed that WFH can reduce physical activity and hybrid can encourage workers' physical activity by providing flexibility to integrate work, leisure, domestic, and travel activities into daily routines. However, motivational factors, commuting, and changes in work style can also influence workers' physical activity levels during the hybrid. In conclusion, the combination can support workers to do sufficient physical activity with support from the surrounding environment and strong motivation.

Keywords: Physical activity, Hybrid, Worker

INTRODUCTION

Sufficient and regular physical activity can improve physical and mental health in all age groups. The World Health Organization (WHO) recommends physical activity to be carried out for 75 minutes at a heavy intensity or 150 minutes at a moderate intensity. However, according to the current WHO, more than 80% of adolescents and 27% of adults still need to meet the recommended level of physical activity. Low physical activity triggers many health problems. Lack of physical activity can increase the risk of suffering from non-communicable diseases such as hypertension, diabetes, and heart disease (World Health Organization, 2022). Regular physical activity can help maintain ideal body weight, increase bone and muscle strength, and improve a person's ability to carry out daily activities (Centers for Disease Control, 2022). Physical activity has been shown to impact health for all causes of death, including cancer, cardiovascular, musculoskeletal, metabolic, and neurocognitive health (Miko et al., 2020).

Low levels of physical activity are of particular concern since the COVID-19 pandemic hit the world's population. Research conducted by McCarthy et al. (2021) showed that in the first week of restrictions during the COVID-19 pandemic, the median weekly physical activity for adults decreased by 37% from before the restrictions. During the COVID-19 pandemic, the government established a work-from-home (WFH) policy to reduce community activities outside the home to prevent virus transmission. Implementing this WFH policy has led to restrictions on activities outside the home to the closure of public facilities. Thus, most of the work

is done online or from home. Reduced daily travel activities and limited access to public places and sports facilities during restrictions further increase the possibility of people carrying out physical activity according to WHO recommendations during a pandemic after previously the level of physical activity of the community was in the low category (Puccinelli et al., 2021).

Physical activity has a vital role in the workforce. In addition to affecting physical and mental health, workers with low physical activity can impact higher healthcare costs and reduce team member productivity. Thus, sufficient and regular physical activity is essential for workers to support health and performance at work (Centers for Disease Control, 2022).

After the restrictions were relaxed, many hybrid models were chosen because they were felt more effective in getting the job done. Hybrid work combines work from the office and at home. Hybrid work is not a new phenomenon. Prior to COVID-19, this model was used relatively rarely, even though the technology was available. Then, the use of hybrid models increased during COVID-19 even after restrictions were relaxed. Hybrid deployment on a large scale presents new challenges and opportunities to increase workers' physical activity. Hybrid implementation can increase physical activity opportunities for everyone by providing flexibility to integrate work, free time, and walking into daily routines compared to physical activity during a pandemic (Gilson et al., 2022).

Because of this novelty, more research is needed to determine the impact of hybrids on workers' physical activity levels. This is because health problems caused by physical inactivity can be fatal if it lasts a long time. In addition, hybrids are also likely to remain in effect after the COVID-19 pandemic, at least for some of the workforce (Gilson et al., 2022). So insight into physical activity in the hybrid era is needed to provide workers, employers, and policymakers recommendations to create a healthy work practice environment. Therefore, this literature review was compiled to describe workers' physical activity during the hybrid. This literature is expected to provide a new understanding of physical activity in determining strategies to increase physical activity in the working population.

RESEARCH METHODS

Study Design

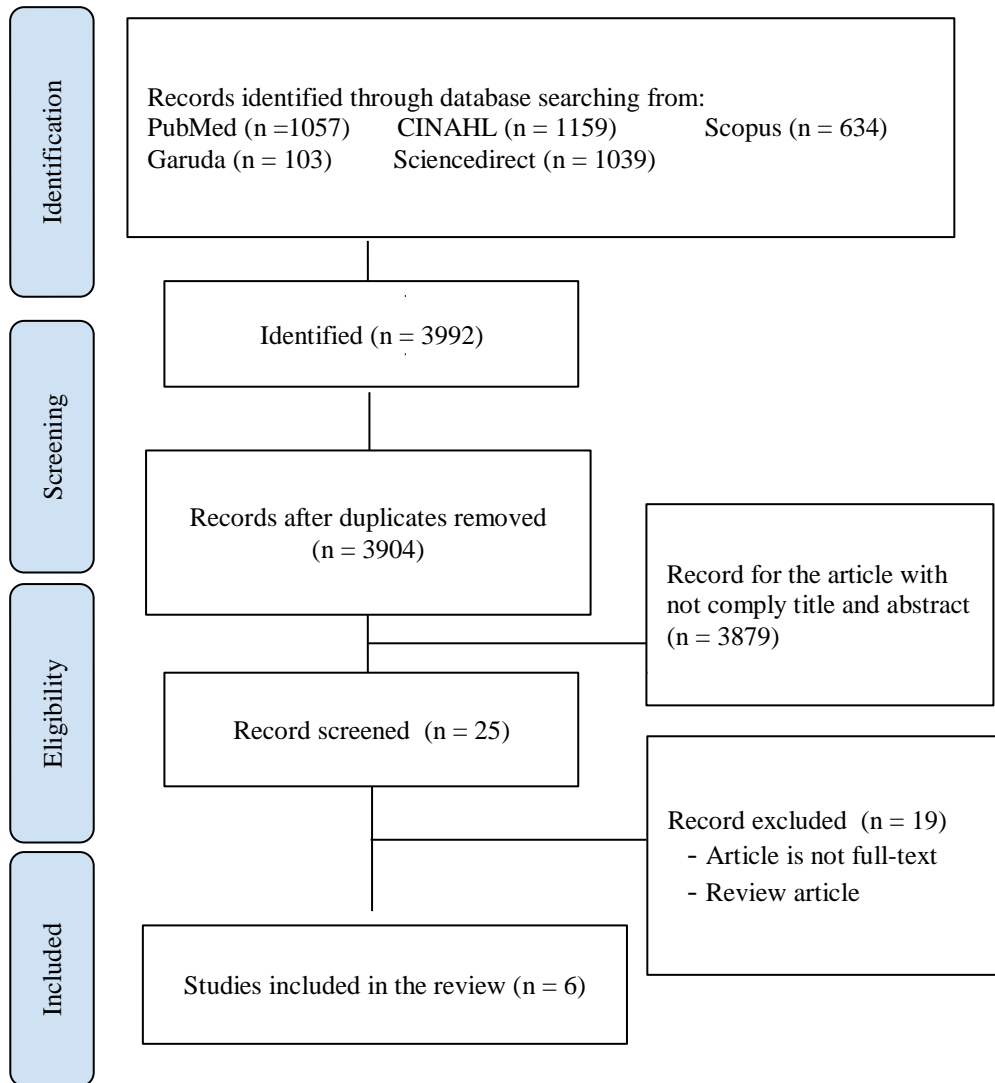
The design used in this literature is a narrative review. A narrative review is scientific writing obtained from a collection of literature that includes interpretation and criticism. Writing a narrative review includes providing authoritative arguments based on published primary evidence, increasing understanding of a topic, and developing a theory.

Search Strategy

The search for articles in this literature was identified based on combining keywords with the PCC approach: population: worker, concept: physical activity, and context: post-COVID-19 (hybrid). The keywords used are "physical activity AND team member OR adult OR worker AND COVID-19 OR hybrid" and "physical activity AND workers OR employees AND COVID-19". The articles were obtained based on five databases, namely Garuda, CINAHL, PubMed, Scopus, and ScienceDirect. The inclusion criteria in this literature review were primary research articles published in 2019–2022 or since the COVID-19 pandemic. Articles

published with full text in English or Indonesian. The exclusion criteria in this study were articles with a secondary research design and a non-working research population.

Data Collection and Analysis



Picture. 1
Article Identification Based on PRISMA 2009

This review uses the literature review method by conducting a systematic search according to the 2009 PRISMA diagram. The study selection process is based on the PRISMA flowchart: (1) Search scientific literature published by indexed journals in various databases. Then identify keywords appropriate to the topic to find papers relevant to the review question; (2) identify duplicate articles; (3) review articles based on abstracts and titles; (4) screen the full text based on established inclusion and exclusion criteria as described in Figure 1. After obtaining appropriate scientific literature, the findings were summarized, synthesized, and analyzed descriptively.

Study Characteristics

In this scoping review, we identified 3,992 studies in the initial search, of which six were reviewed in this narrative review. The study methods used by the authors include cohort (2), cross-sectional (3), and longitudinal (1) studies. This research involved workers from various fields, including health, administration, and education. These six studies were conducted in five countries, namely the Netherlands, Japan, Singapore, England, and Indonesia. This research was published between 2020 and 2022.

Table. 1
Study Characteristics

Author, Year	Country of origin	Types of research	Participant
Loef et al. (2022)	Belanda	Cohort	18,379 workers (location, home, hybrid)
Ishibashi & Taniguchi (2022)	Japan	Cohort	4484 workers
Kua et al. (2022)	Singapore	<i>Cross sectional study</i>	707 health workers, physiotherapists, pharmacists, laboratory technicians, nurses, administrative staff, and doctors
Gonzales et al. (2020)	English	Longitudinal	188 government employees whose main jobs are computer-based and most of them are desk bound
Setiawan et al. (2021)	Indonesia	<i>Cross sectional study</i>	40 employees
Ekawati et al. (2020)	Indonesia	<i>Cross sectional study</i>	44 non-academic university employees from various faculties and work units

RESEARCH RESULT

Table. 2
Results of Literature Review

Author's name, article title, type of research	Year	Objective	Findings
Loef et al., <i>Working from Home During the COVID-19 Pandemic and its Longitudinal Association with Physical Activity and Sedentary Behavior</i> , Cohort	2022	Recognize the relationship between working from home (whether fully or partially) with PA and sedentary behavior	High intensity PA during the pandemic: PR (odd ratio 1.69), PH (odd ratio 1.32) High intensity PA before the pandemic: PR (odd ratio 1.36), PH (odd ratio 1.18) Sedentary (8 hours per day) during a pandemic: PR (odd ratio 1.94), PH (odd ratio 1.73)

Ishibashi & Taniguchi, <i>Transportation Research Interdisciplinary Perspectives Workstyle Change Effects on Physical Activity and Health Consciousness in Japan : Results from COVID-19 Lifestyle Activity Survey, Cohort</i>	2022	Analyze influence changes in work style (before, during, after COVID-19) on the number of PAs Job change:C/T/C C/T/T T/T/T	During COVID-19: C/T/T and C/T/C workers experienced a decrease in PA in almost all modes of transportation After COVID-19: The number of PA workers C/T/C returned to the previous level. However, C/T/T workers did not return to their previous PA levels but still experienced an increase when compared to activities during COVID-19, even though only slightly. T/T/T workers reported a slight increase in activity after COVID-19.
Kua et al., <i>“Physical Activity Levels and Mental Health Burden of Healthcare Workers During COVID-19 Lockdown” Cross sectional study</i>	2022	Investigate relationship between changes in PA levels and the psychology of health workers during the COVID-19 lockdown	23.2% did not have moderate to severe CL before the pandemic, and 70% during the pandemic. There was an inverse relationship between moderate to severe PA with mild depression (odds ratio 0.87) and moderate to severe depression (odds ratio 0.85).
Gonzales et al., <i>Physical Activity Changes Among Office Workers During the COVID-19 Pandemic Lockdown and the Agreement Between Objective and Subjective Physical Activity Metrics, Longitudinal</i>	2020	Understand how PA and worker sitting time are affected during the pandemic	January to April weekday PA fell 0.09 METs/day, down 0.08 METs/day through June, down 0.11 METs/day through December. PA outside hours January to April decreased 0.06 METs/day, decreased 0.07 METs/day through June, decreased 0.09 METs/day through December. Sitting time increased 1.45 hours from January to June, and 1 .99 hours through December.
Setiawan et al., <i>Hubungan Aktivitas Fisik dengan Kebugaran dan Tingkat Stres pada Karyawan Back Office Rumah Sakit Omni Alam Sutera dimasa Pandemi Covid-19, Cross sectional study</i>	2021	Knowing the relationship between PA and fitness and stress levels in hospital back office employees. Omni Alam Sutera during the COVID-19 pandemic	Light physical activity (62.5%), moderate activity category (25%), heavy activity category (12.5%). Relationship between PA and fitness (odds ratio 10.00), PA with moderate stress, odds ratio 0.18).

Ekawati et al., Level Aktifitas Fisik dan Faktor Risiko Penyakit Kardiovaskuler pada Karyawan Kantor di Universitas, <i>Cross sectional study</i>	2020	Describe the level of PA and its relationship with the risk of cardiovascular disease	PA employees in the low category of 6.82%, medium of 72.73%, and high of 20.45%. Correlation between systolic and diastolic blood pressure with PA level (odd ratio 0.46 and 0.32).
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The two main topics in the six articles we found were changes in physical activity and length of time sitting (sedentary behavior). Three of them also discussed the relationship of physical activity to other health conditions, and one study analyzed changes in physical activity based on changes in work style before, during, and after the COVID-19 pandemic. This data will then be calculated based on the guidelines, and the final energy expenditure results will be obtained, expressed in Metabolic Equivalent Task (METs) units. These six studies use self-report to measure workers' physical activity levels. During data collection, participants were asked to remember the duration, frequency, and types of activities they did before and during the COVID-19 pandemic. The intensity of physical activity during self-report is determined based on the change in breath rate during activity that the participants feel, so this data is subjective data. However, one article also uses objective data by measuring heart rate to determine the intensity of participants' physical activity. Then, five studies measured physical activity in general or covered all physical activity domains, namely domestic, travel, recreation, and work, and one study only measured the travel domain.

After summarizing, various results were found from several of these studies, including: (1) a study conducted by Loef et al. in 2022 reported that hybrid workers and WFH were relatively new to starting high-intensity physical activity during a pandemic. Hybrid workers and WFH spend an average of 8 hours sitting a day. (2) The study from Ishibashi et al., 2022 shows the results that differences in changes in work style result in different physical activities related to daily travel. It is known that telework drastically reduces the amount of physical activity associated with daily commuting for any mode of transportation. In addition, commuting behavior is also a driving factor for the amount of physical activity associated with daily commuting for workers. (3) Kua et al., 2021 reported that prior to COVID-19, a small proportion of workers did not engage in moderate to vigorous physical activity. Then during the COVID-19 restrictions, this data increased so that most workers did not do moderate to heavy-intensity physical activity. Workers who experience a decrease in physical activity are also known to experience levels of major depression when compared to workers who do not experience a decrease in activity. So, the lower their physical activity, the higher the risk of experiencing psychological problems. (4) Gonzales et al., 2020 showed that workers' physical activity levels continued declining from January 2020 to December 2020, both during and outside working hours. Like physical activity, workers' sitting time from January to December 2022 increased by almost 2 hours daily. (5) Setiawan et al., 2021 show that most workers have physical activity in the light category, less than half are in the moderate category, and only a small number are in the high category. The research results also report a relationship between physical activity, fitness levels, and stress. Workers with light physical activity are ten times more at risk of having poor physical fitness. In addition, they are 0.18 times at risk of experiencing

moderate stress levels compared to workers who carry out moderate and high-category activities. (6) Ekawati et al., in 2021, reported that few of the workers had physical activity; almost half of them were in the moderate category, and less than half were in the high category. Physical activity is also known to affect workers' systolic and diastolic blood pressure.

DISCUSSION

Worker Physical Activity During Hybrid

Implementing the lockdown policy during the COVID-19 pandemic caused restrictions on people's activities outside the home to the closure of public facilities and offices. This forced a shift in the paradigm of a flexible work strategy in a very short time. Working remotely has become a sustainable solution in several industries, such as providing higher education, business, operational management, and administration. With the prolonged impact of COVID-19, companies are turning to hybrid or partially remote work as the new default (Tronco Hernández et al., 2021). This change has a broad impact on work productivity, welfare, and health of workers, one of which is the level of physical activity. Hybrid implementation can increase physical activity opportunities for workers by providing flexibility to integrate work, leisure, domestic, and travel activities into daily routines compared to physical activity during a pandemic (Gilson et al., 2022). Therefore, it is necessary to understand the direct and indirect impacts of hybrid work on workers' physical activity (Hernández et al., 2021).

Study results of Kua et al. (2021); Gonzales et al. (2022) showed that during WFH during the COVID-19 pandemic, most workers experienced a decrease in physical activity in frequency and duration both during working hours and outside working hours. A recent systematic review of changes in physical activity and inactive behavior of workers during the COVID-19 pandemic stated that work-from-home policies had disrupted physical activity levels and increased sedentary behavior among workers (Loef et al., 2022). Workers' Low physical activity negatively impacts their physical and psychological health. Workers with low physical activity are more at risk of having poor physical fitness, the risk of experiencing major depression, stress, and the risk of increasing systolic and diastolic blood pressure when compared to workers with moderate and high activity during the COVID-19 pandemic (Ekawati et al., 2020; Kua et al., 2022; Loef et al., 2022; Setiawan et al., 2021). So that the implementation of hybrid is an opportunity for workers to remain physically active and fulfill physical activity according to WHO recommendations.

For WFH workers, the loss of daily commuting will likely result in substantially reduced daily activities. In addition, homeworkers may spend more time sitting at a desk most of the day with more screen time than when working in an office. WFH workers generally walk less on weekdays due to the smaller size of their work area (Loef et al., 2022).

Although hybrid allows workers to travel daily actively, the hybrid condition also does not automatically increase workers' physical activity. A study from Ishibashi & Taniguchi (2022) shows that commuting behavior is also a driving factor for the amount of physical activity associated with daily commuting for workers. The mode of transportation used for travel and the amount of physical activity of workers will, of course, be different for each type of transportation. The

difference in the distance between the location of residence and the place of work affects the mode of transportation that workers choose to travel. The results of previous research on physical activity indicate that the transportation used by commuters and non-commuting workers will be very different. Commuter workers may use public transportation as a transportation option to save costs and energy.

In addition, they can also choose private vehicles because they are faster and more efficient. While cycling and walking will tend to be chosen by non-commuting workers. So commuting behavior is also considered a driving factor for the amount of physical activity associated with workers' daily commute (Ishibashi & Taniguchi, 2022). In addition, cultural differences from each country in choosing the type of transportation can also affect physical activity. For example, cycling in the Netherlands has become one of the habits people travel (Loef et al., 2022). In contrast to other countries where people use more vehicles for travel, they tend not to be motivated to be more physically active. Therefore, of course, this will affect people's behavior in physical activity.

Interestingly, Ekawati et al. (2021) research revealed that most workers have moderate physical activity. This is undoubtedly contrary to the results of other studies, which state that most workers have low activity during the COVID-19 pandemic. This may be due to motivational factors for physical activity and changes in work style beforehand, during, and after the COVID-19 pandemic. Research conducted by Loef et al. (2022) reported that hybrid workers and WFH experienced an increase in high-intensity physical activity relatively recently during the COVID-19 pandemic. In contrast to workers who, since before the pandemic until now, have been using work from the office, WFH, or hybrid, there has been relatively no change in their level of physical activity (Ishibashi & Taniguchi, 2022). Besides changing work styles, hybrid workers are also less motivated to do physical activity because they are advised to stay home as much as possible during the COVID-19 pandemic. In contrast, other hybrid workers may be more motivated to exercise. They may have found more opportunities to exercise during the workday, for example, at lunchtime, between meetings, or spend their free time exercising before or after work (Loef et al., 2022).

Team Member's Sedentary Behavior

One study reported that high physical activity among workers did not always lead to a decrease in sedentary behavior because the type of physical activity carried out in a short time, such as weight training, did not significantly impact changes in sedentary behavior. Regular workers can engage in sedentary behavior most of the day. Hybrid workers are known to be more likely to have a long sitting time and can spend up to 8 hours per day sitting (Gonzales et al., 2020; Loef et al., 2022).

The existence of technology that facilitates work today makes workers tend to sit and stand more while working. Today's workers prefer using Internet access to complete their work, such as using email to send letters or files and teleconferences to attend various meetings. This makes workers tend to be less active and spend most of their time working, increasing sedentary behavior (Furley & Goldschmied, 2021; Putri et al., 2020).

Although there is currently no definitive evidence establishing measurable recommendations for sedentary behavior, high levels of sedentary behavior can increase the risk of health problems such as cardiovascular disease and type 2

diabetes (Dempsey et al., 2020). Lipoprotein lipase activity, muscle glucose, protein transporter activity, impaired lipid metabolism, and carbohydrate metabolism can be reduced due to high sedentary behavior. Consequently, sedentary behavior can also reduce cardiac output and systemic blood flow, activate the sympathetic nervous system, and reduce insulin sensitivity (Park et al., 2020). Therefore, special attention may be needed to reduce sedentary behavior during hybrid learning. Creating a healthy work environment at home and office during the hybrid can be an alternative way to encourage workers' physical activity and prevent too much sitting during work.

CONCLUSION

Hybrid implementation can increase workers' physical activity by providing flexibility to integrate work, leisure, domestic, and travel activities into daily routines compared to physical activity during a pandemic if supported by the surrounding environment and strong motivation to carry out sufficient physical activity.

SUGGESTION

In the future, more research and research will be conducted to discuss workers' physical activity during the hybrid, bearing in mind that the impact of low physical activity during the prolonged COVID-19 pandemic can cause more severe health problems in the future. The limitation in writing articles on this topic is obtaining relevant studies regarding hybrids. With much research on worker activities during the hybrid, we can find constructive new insights related to physical activity for better solutions in the future.

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