

Physical Activity and Health-Related Internet Usage during Covid-19 Pandemic in Indonesian Society

Aktivitas Fisik dan Penggunaan Internet Terkait Informasi Kesehatan selama Pandemi Covid-19 pada Masyarakat Indonesia

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Physical activity is defined as any bodily movement produced by skeletal muscles. Several factors can influence a person's physical activity levels, one of them is work from home (WFH) policy caused by Covid-19. This policy could reduce a person's physical activity. To maintain health during the Covid-19 pandemic, most people access the internet to find health-related information. However, there is no information about the physical activity level and the relationship between physical activity and health-related internet usage during the Covid-19 pandemic in Indonesian society. This study asked 83 participants from 32 cities in Indonesia to fill the questionnaire related to their activity using the International Physical Activity Questionnaire (IPAQ) and the purpose of internet usage. Most of the respondents had moderate activity levels. Females were more active than males during the Covid-19 pandemic. A higher intensity of working from home negatively correlated with a physical activity score, however, it was not statistically significant. People who used the internet to search for a healthy diet and healthy life information were more physically active than those who did not. Thus, we assumed that people who used the internet to search for a healthy diet and healthy life information have high awareness about their health.

Key words: Indonesia, internet usage, IPAQ, MET, physical activity

INTRODUCTION

Physical activity is defined as any bodily movement produced by skeletal muscles that result in energy expenditure (McKinney *et al.* 2016). People with high physical activity tend to have higher life satisfaction and better health (An *et al.* 2020). Several factors can influence a person's physical activity levels, such as age, sex, and environmental conditions (Caspersen *et al.* 1999; Suryadinata *et al.* 2020; Teran-Escobar *et al.* 2021). One environmental condition affecting someone's physical activity is the Covid-19 pandemic (Kaur *et al.* 2020). Covid-19 is an infectious disease that can spread through person-to-person interactions via direct contact or droplets spread by coughing or sneezing from an infected person to a non-infected person (Rothan and Byrareddy 2020). To reduce the number of transmissions of Covid-19, the government establish a Work from Home (WFH) policy (Mohler *et al.* 2020).

Work From Home (WFH) policy could reduce physical activity due to the lack of outdoor exercise (Fuzeki *et al.* 2020). To cover the lack of physical activity and maintain health during the Covid-19 pandemic, most people access the internet to find health-related information such as a healthy lifestyle (Parial *et al.* 2021). In addition, the previous study in UK and Australia showed that the Covid-19 pandemic has led to increases in population-level interest in physical activity (Ding *et al.* 2020). However, there is no information about the physical activity level and the relationship between physical activity and health-related internet usage during the Covid-19 pandemic in Indonesian society.

Thus, this study aimed to examine Indonesian people's physical activity and find out the relationship between physical activity and health-related internet usage during the Covid-19 pandemic.

MATERIAL AND METHOD

Respondents. The total number of respondents used in this study were 83 individuals consisted of

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20 males and 63 females with age ranged between 15 to 49 years old (Table 1).

Procedures. A national cross-sectional study was performed in September 2020. The questionnaire was put in the Google Form media, consists of four sections; the first section is the introductory page, informing respondents about the study's purpose, the researcher's contact address, and informed consent, the second section asked about demographic information, the third section asked about the respondent's purpose of using the internet, and the last section asked about physical activity using the International Physical Activity Questionnaire (IPAQ). Respondent's answers obtained from the questionnaire are confidential and only used for study purposes.

International Physical Activity Questionnaire (IPAQ). International Physical Activity Questionnaire (IPAQ) is a personal report related to physical activity in the past week (Ainsworth *et al.* 2006). The questionnaire assesses physical activity undertaken across a comprehensive set of domains, including leisure time, domestic, gardening (yard) activities, work-related, and transport-related activity calculated in minutes per day or days per week. In each domain, respondents reported the frequency and duration of different types of activity: vigorous (i.e. heavy lifting, performing intense aerobic exercises, using bike or treadmill); moderate (i.e. sweeping, mopping, gardening); walking activities, as well as the average time, spent sitting on a weekday, including sitting at work (Maugeri *et al.* 2020). IPAQ is consist of two versions, the short version and the long version. In this study, we used the long version of IPAQ because the questionnaire ask details of specific task of activities. The example of the question is "How much time did you usually spend on one of those days doing vigorous physical activities?"

IPAQ classified total activity into three different groups; low, moderate, and high based on Metabolic Equivalent Task (MET) level. Metabolic Equivalent Task (MET-min/wk) is a value to quantify the energy cost of individual activities. A higher MET-min/wk score of individuals equals to the energy expenditure that they spend.

Statistical Analysis. The statistical analyses were conducted using the statistical software RStudio version 1.4.1103 for descriptive statistics and correlation analysis (R Core Team 2013). Spearman's rank correlation coefficients were calculated to determine the correlation between physical activity with the intensity of working from home. In order to examined the difference between independents variables, we used Kruskal-Wallis test (Van Hecke 2011).

RESULTS

Demographic of Respondents. The total number of respondents that participated in this study were 83 participants (20 males and 63 females). The age of

Table 1. Demographic data of the respondents

	Variable	N*	Percentage (%)
Sex	Male	20	24.10
	Female	63	75.90
	Total	83	100.00
Cities	Bandarlampung	1	1.20
	Bandung	2	2.41
	Bayua	1	1.20
	Bekasi	2	2.41
	Bengkulu	1	1.20
	Bogor	10	12.05
	Boyolali	1	1.20
	Bukittinggi	2	2.41
	Denpasar	1	1.20
	Depok	2	2.41
	Jakarta	8	9.64
	Jatinangor	1	1.20
	Kubu Raya	2	2.41
	Malang	1	1.20
	Manokwari	1	1.20
	Minahasa	1	1.20
	Padang	1	1.20
	Pagaralam	1	1.20
	Palembang	1	1.20
	Palu	1	1.20
	Pekalongan	1	1.20
	Pematangsiantar	2	2.41
	Pontianak	25	30.12
	Samarinda	1	1.20
	Sambas	1	1.20
	Siak	1	1.20
	Situbondo	1	1.20
Sleman	2	2.41	
Sukabumi	1	1.20	
Sumedang	1	1.20	
Tangerang	5	6.02	
Tasikmalaya	1	1.20	
Total	83	100.00	

N*: Number of individual

respondents ranged between 15 to 49 years old. The mean age of the respondents was $21.89 + 6.33$ years old ($M_{\text{males}} = 21.35$ years, s.d. = 3.34 years; $M_{\text{females}} = 22.06$ years, s.d. = 7.03 years). Demographic data of respondents were shown in Table 1.

Physical Activity of Respondents. Most of the respondents (75.90%) in the study were categorized as individuals with a moderate physical activity, followed by 17 respondents (20.48%) categorized as individuals with high physical activity, and 3 respondents (3.61%) categorized as individuals with low physical activity as shown in Table 2.

Sex Difference in MET Score. This result showed that female had higher MET-min/wk scores than male (Female = 23598.47 + 23106.70, Male = 17065.80 + 19321.14), indicating that female were more physically active than male. However, this result was not significantly different (Figure 1).

Correlation between Intensity of Working from Home with MET. Intensity of working from home had a negative correlation with MET-min/wk score, although it was not statistically significant (Spearman cor.test, $Rho = 0.1$, p-value = $2.2e-10$). The result

showed that the higher intensity of working from home, the lower the MET-min/wk score as shown in Figure 2.

Respondents Internet Usages. This result showed that there was a significant difference between people who used and did not use the internet as the source of healthy diet information (Kruskal-wallis, p-value = 0.0319*). People who used the internet to search healthy diet information had a higher physical activity levels that those who did not (Table 3).

DISCUSSION

There was a similarity between the present study with a study by Jalloun and Surrati (2020), which

Table 2. Category of respondent’s physical activity

Category of physical activity	N*	Percentage (%)
Low	3	3.61
Moderate	63	75.90
High	17	20.48
Total	83	100.00

N*: Number of individual

showed that moderate activity was higher than other types of activities (vigorous, walking, and sitting). This result might happen because most vigorous physical activities such as running, cycling, and fast swimming were usually done outside. However, during the Covid-19 pandemic, these facilities were difficult to access. Thus, people prefer to do

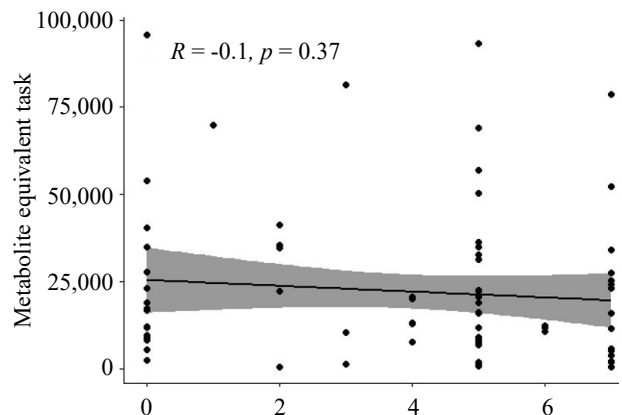


Figure 1. Correlation between intensity of working from home with metabolite equivalent task

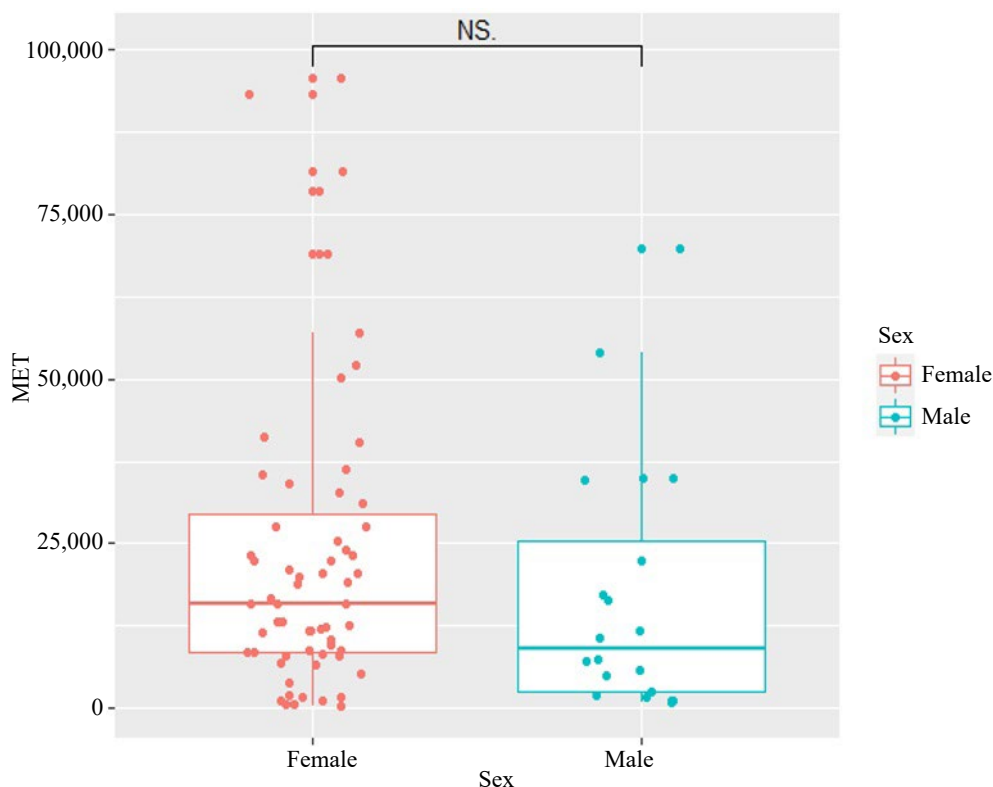


Figure 2. Metabolite Equivalent Task (MET)-min/wk distribution based on sex

Table 3. Average of MET-min/wk with the purpose of using the internet

	Yes		No		p-value between yes or no
	Average	Standard deviation	Average	Standard deviation	
Internet usage on healthy diet	23,648.15	23,011.44	8,672.93	6,971.54	0.0319*
Internet usage on healthy life	23,206.94	23,071.22	10,937.33	7,236.96	0.1673

*statistically significant

physical activities with lower intensity levels or moderate activities such as housework (Maugeri *et al.* 2020).

Several factors could influence physical activity; one of them is sex. In our study, females showed a higher average metabolic equivalent task (MET) min/wk score than male (Female = 23598.80 + 23106.70, Male = 17065.80 + 19321.14). This finding differed from previous studies that showed males were more physically active than females (Ozdol *et al.* 2012; Maugeri *et al.* 2020). This result is possibly explained by the higher amount of housework physical activities (e.g., sweeping and mopping) found in females than males during the Covid-19 pandemic (Maugeri *et al.* 2020). In addition, males prefer to do sports outside and/or in public places such as soccer fields, gyms, fitness clubs (Li *et al.* 2017). Therefore, it could lower their physical activity during the Covid-19 pandemic.

The present study showed that the higher the intensity of working from home, the lower the physical activity levels. This result was in line with Blanco *et al.* (2020) and Rathonyi *et al.* (2021), which showed that working from home was associated with increased sedentary behavior (McDowell *et al.* 2020; Hallman *et al.* 2021). Hence, it led to a decrease in MET levels. These behaviors harmed people's healthy habits and could be at risk of being physically inactive (Thorp *et al.* 2012).

This study also sought to find out the purpose of using the internet during the Covid-19 pandemic. The result showed that people who used the internet to search for healthy life and healthy diet information had higher physical activity levels than those who did not use the internet to search for it. This study predicted that those who used the internet to search for healthy life information were concerned about their health and would eventually adopt a healthy diet. Therefore, we assumed that people who used the internet to search for a healthy diet and healthy life information have high awareness about their health.

In conclusion, during quarantine in Indonesia, people tend to do moderate activity compared to other types of activity. Females had a higher physical activity level than males during the Covid-19 pandemic. People who Work from Home (WFH) tend to have lower MET scores even though the result was not statistically significant. People who used the internet to search for a healthy diet and healthy life information were more physically active than those who did not. This study assumed that they were aware that people who used the internet to search for a healthy diet and healthy life information have high awareness about their health.

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