

## ORIGINAL SCIENTIFIC PAPER

# Lifestyle Changes During COVID-19 of University Staff in Indonesia: A Cross-Sectional Survey

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## Abstract

Among the lecturers and staff at the university are experiencing stress disorders, especially during the COVID-19 pandemic. We aimed to determine the prevalence of cardiovascular risk factors, physical activity, and dietary adherence among lectures and staff associated with the national survey. A cross-sectional study with a web-based questionnaire presented anonymous demographic data, cardiovascular risk factors, physical activity, dietary intake, and healthy lifestyle barriers. A total of 1,862 lecturers and staff who met the following criteria for participation, having reached the age of majority at 25, were accepted into the study, gave informed consent online, and responded to a survey. BMI in the staff and lecturers group was overweight and obese, slightly lower for lecturers (25.9 kg/m<sup>2</sup>) compared to staff (27.4 kg/m<sup>2</sup>) with adjustments for age and gender. There was no significant difference ( $p > 0.05$ ) in the prevalence of obesity between staff and faculty regardless of age or gender. The short IPAQ questionnaire revealed that around 68.7% of lecturers did PA category 2 or 3 and 28.3% of lecturers did PA category 3. Muscle strengthening exercises were carried out in each group by 24.5% of lecturers and 21.4% of staff. Lecturers (74.2%) feel responsible for their health. Most of the participants expressed that their working hours prevented them from staying fit. Physical activity and low intake of vegetables and fruits due to lack of managerial support, fitness facilities, and long working hours are obstacles to a healthy lifestyle. Very few lecturers and staff can follow an active lifestyle every day of the week and tend to engage in physical activity for longer periods within days or regulate food intake during the COVID-19 pandemic.

**Keywords:** *lifestyle, cardiovascular, physical activity, covid-19*

## Introduction

The fourth leading cause of death worldwide is physical inactivity and it is one of the main risk factors for non-communicable diseases (World Health Organization, 2010). WHO recommendations make it clear that physical activity for adults aged 19-64 should strive to be active every day, taking part in at least 150 minutes/week of moderate-intensity aerobic activity, 75 minutes of vigorous intensity, or a combination of both, with additional muscle-strengthening activity on 2 or more days per week. 33.5% in Indonesia are deemed to be physically inactive (World Health Organization, 2010). Low levels of

physical activity can lead to high body fat and appetite dysregulation (Kovacheva & Tsen, 2018).

Lifestyle is a complex foundation that plays a central role in the state of health of an individual. Lifestyle is based on the habits, behavior, attitudes, activities, and decisions of a person, or a group of people, related to various situations in society or during work, and daily activities, and which can be modified (Health and Safety Executive, 2017). Lifestyle includes several behaviors such as type of diet/nutrition, physical activity, drinking alcohol, smoking and/or taking other drugs, responsibility for health, recreational activities, interpersonal rela-



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tionships, sexual practices, activities related to work/career, and patterns consumption (Ramírez & Agredo, 2012).

Lifestyle can affect health diseases, which can be interpreted as identification and priority for all professionals including lecturers and staff. WHO explains that crawling non-communicable diseases (NCDs) can significantly be overcome by modifying lifestyle and related risk factors (World Health Organization, 2010), which prioritizes physical activity, controlling their body weight and healthy eating patterns, limiting tobacco and intake of alcohol and also keep blood pressure and plasma lipid levels within normal limits. The majority of Indonesians, or 78.9 percent of the population, engage in physical exercise, compared to only 21.1 percent of those who engage in less physical activity. In contrast, when looking at smoking behaviors, 27.2 percent of people in Indonesia who are 15 years old currently smoke, 4.9 percent of people who used to smoke, and 67.8 percent of people do not (Kesehatan et al., 2019).

Coronavirus disease 2019 or what is now known as COVID-19 is a severe acute respiratory syndrome caused by SARS coronavirus 2 (SARS-CoV-2) (Wang et al., 2020). To contain the spread of the new COVID-19, in early March 2020, the Government of Indonesia decided to take action to ban mass gatherings that were enforced throughout the national territory.

This new condition can interfere with a healthy and varied diet and regular physical activity. For example, decreased consumption of fresh food, especially fish and vegetables, and fruits due to limited access to grocery stores. This has resulted in preferring foods that are processed in a fast manner, such as snacks, junk food, eating cereals that are high in sugar, fat, and salt. In addition, emotional and psychological responses to the COVID-19 outbreak (Wang et al., 2020), resulted in lifestyle changes due to control measures with the consequences of persistent changes in unhealthy behavior.

Many studies have been conducted on the effects of the pandemic on the health of the general public since it was declared to exist, but few have looked at how it has affected professors and staff. Numerous research has examined its impact on certain lifestyle factors, including mental health (Husky et al., 2020; Son et al., 2020), physical activity (Huber et al., 2020; Romero-Blanco et al., 2020a), food (Duong et al., 2020), sleep (Romero-Blanco et al., 2020b; Son et al., 2020), or a combination of these factors (Amatori et al., 2020). Few research, however, has examined important aspects of health determinants such as social and family ties, drug use, and work satisfaction. We haven't come across any research that assesses changes in general function experienced by university faculty and staff in Indonesia during the COVID-19 pandemic concerning cardiovascular risk factor status, measuring adherence to dietary recommendations, or tracking physical activity. By evaluating individual and institutional factors that are thought to be barriers to leading a healthy lifestyle, the study's objectives included determining cardiovascular risk factor status, monitoring adherence to dietary recommendations and physical activity guidelines, and making comparisons between lecturers and staff at the university. Accordingly, we conducted a study aimed to determine the prevalence of cardiovascular risk factors, physical activity, and dietary adherence among lectures and staff associated with the national survey.

## Methods

### Design

The Department of Physical Education of the Universitas Tanjungpura conducted this observational, descriptive, and

survey study. A web poll using Microsoft Forms was utilized to gather information on the collegiate population of Indonesia during the COVID-19 pandemic.

A digital platform, available from any device with an internet connection, including smartphones, desktops, and tablets, was used to survey from July to August 2020. Institutional emails, corporate and private social networks (Twitter, Facebook, and Instagram), and WhatsApp were all used to spread the word about the poll. According to earlier studies (di Renzo et al., 2020), this approach is effective for achieving the research goals since it makes it easier to disseminate the survey questionnaire during a time when there are a lot of territorial restrictions because of the pandemic.

According to other studies (di Renzo et al., 2020), this is a multicenter cross-sectional study that is entirely based on a self-suggested questionnaire. This approach is effective for the research goals because it makes it easier to disseminate the survey questionnaire during a time when there are many territorial restrictions because of the pandemic.

### Participants

University lecturers and staff primarily based totally in and around Pontianak agreed to take part in this examination which had been West Pontianak, East Pontianak, Southeast Pontianak, South Pontianak, and The city of Pontianak. According to the following eligibility requirements, participants were admitted to the study: Inclusion criteria: the age of majority is 25; become a lecturer and staff at an Indonesian university and submit informed permission online. Exclusion criteria: having a severe impairment or disorder that constrained or limited one's way of life.

A total of 1862 staff and faculty approved participation in the survey. Respondents were almost equally divided between the staff group ( $n=929$ ,  $31.4\pm 21$ ) and the lecturer group ( $n=933$ ,  $32.3\pm 23$ ). Participants were aged between 25 and 50 years. The proportions of men and women did not differ between groups of staff and lecturers. Of these, 1862 staff and faculty completed the first two sections of the survey, while 1711 of them completed all five sections of the questionnaire. Outcomes for demographic and risk factors with medical conditions were analyzed and reported by all participants ( $n=1862$ ), whereas responses related to diet, PA, and healthy lifestyle barriers were analyzed for those who completed the entire survey ( $n=1711$ ).

All groups of workers without delay hired via way of means of the trusts had been covered withinside the survey. Ethics approval (EC/UNTAN/20520) or waiver turned into acquired from the Universitas Tanjungpura. The Checklist for Reporting Results of Internet E-Surveys (CHERRIES) turned into followed for improvement and reporting of the survey (Eysenbach, 2004). The group of workers needed to provide their consent to the questionnaire earlier than they may continue further, which turned into duly recorded. At the quit of this duration, the facts from the online questionnaire had been extracted for analysis.

### Data Collection

The COVID-19 pandemic-related state of panic that Indonesia had at the time the study was conducted made it hard to administer the questionnaire in person. Through a website created for conducting surveys, the questionnaire was delivered digitally (Microsoft Forms). By preventing the

potential bias of feeling assessed by the person delivering the questionnaire, this structure supported the participants' genuineness. To learn how the participants' lifestyles have changed.

#### Survey questionnaire design

The survey became anonymous, and no identifiable non-public info have been amassed from the respondents. The questions have been advanced to check the compliance in opposition to the overall fitness steerage posted through the WHO (Wood et al., 2005). There have been 5 sections inside the questionnaire. Body mass index (BMI) same to or extra than 25 kg/m<sup>2</sup> became classified as overweight, even as same to or extra than 30 kg/m<sup>2</sup> became labeled as obese (WHO, 2020). Self-reported height and weight were used to compute the BMI (kg/m<sup>2</sup>). The BMI of each participant was computed by dividing their weight (kg) by their height (m<sup>2</sup>). The questions about eating regimen have been acquired from the Leeds brief shape meals frequency questionnaire (SFFFQ) (Cleghorn et al., 2016), which has 20 meals frequency questions, the responses to that are used to calculate meals institution or nutrient- unique day by day consumption and an eating regimen nice score (DQS) in 5 domains (intake of fruit, vegetables, oily fish, fats, and non-milk extrinsic sugars (NMESs) and a complete score. A DQS of 12 or extra is taken into consideration to symbolize a healthful eating regimen. The PA questions protected the same old brief inter-country-wide bodily interest questionnaire (IPAQ) (Mehta et al., 2018).

To evaluate the responses, a Likert-type scale was used,

which assigns a score between 0 and 4, where a score of 4 equates to always or almost often, depending on the type of topic asked. The scale reflects the degree of opinion or behavior on each question posed. The maximum possible score is 100, and the data are interpreted for healthy lifestyles in general as follows: a lifestyle is considered fantastic if it scores 85 to 100 points, good if it scores 70 to 84, average if it scores 60 to 69, low if it scores 40 to 59, and dangerous if it scores up to 39 points. Through the use of Spearman's test-retest correlation, the questionnaire's reliability in its validated version in Indonesia was found to be quite high ( $p=0.01$ ,  $r=0.81$ ).

#### Statistical analysis

Survey reaction costs have been assessed as view charge, participation charge, and crowning glory charge according to the CHERRIES tick list for the entire look at a cohort (Eysenbach, 2004). Proportions and chances are used to explain all specific data. The chi-rectangular take a look at became used to examine the gender of the staff, even as the Mann-Whitney take a look at became used to examine the age class among groups. All questionnaire outcomes have been transformed into binary final results measures. Logistic regression became used to examine the consequences among medical and non-medical groups. The analyses have been adjusted for age institution and sex. All statistical evaluation became done with the use of SPSS version 23 (SPSS inc., Chicago, IL, USA). For all statistical analyses, significance was accepted at  $p<0.05$ .

**Table 1.** List of national standards/guidance on body mass index, diet, and physical activity as outcome measures.

Standard guidance/indicator	
Body mass index (WHO, 2020)	25-30 kg/m <sup>2</sup>
Dietary intake (Department of Health, 2011)	Daily consumption of at least five portions of fruit and vegetables Weekly intake of at least two portions of fish, one of which should be oily (one portion of oily fish 1/4 140 g) Fats to form not more than 30% of daily energy intake ( $\leq 85$ g) Less intake of added sugars or non-milk extrinsic sugars forming no more than 11% of daily energy intake ( $\leq 60$ g)
Physical activity (Department of Health, 2011)	150 Minutes of moderate intensity activity in bouts of 10 minutes or more, or 75 minutes of vigorous intensity activity each week, and undertake physical activity to improve muscle strength at least two days a week

## Results

BMI in the staff and lecturers group was overweight and obese, slightly lower for lecturers (25.9 kg/m<sup>2</sup>) compared to staff (27.4 kg/m<sup>2</sup>) with adjustments for age and gender. There was no significant difference ( $p>0.05$ ) in the prevalence of obesity between staff and faculty regardless of age or gender (Table 2).

Most reported suffering from stress-related conditions, es-

pecially among staff groups (Table 2). Based on the SFFFQ, the recommendations for five servings of fruit or vegetables a day are met, consume one or more servings of oily fish per week, and meet the recommended intake for fat ( $\leq 85$  g/day) and NMES ( $\leq 60$  g/day) with no difference in intake between staff and lecturers (table 2). The short IPAQ questionnaire revealed that around 68.7% of lecturers did PA category 2 or 3

**Table 2.** Prevalence of cardiovascular risk factors, medical conditions, and adherence among lecturers and staff to nutritional and physical activity guidelines.

	All (%)	Lecturer (%)	Staff (%)	OR (95% CI)	P value	National data (%)
Cardiovascular risk factors (n=1862)						
Overweight	872 (46.8)	427 (45.7)	474 (51)	0.88 (0.68, 1.12)	0.59	59
Obese	373 (20)	178 (19)	186 (20)	0.80 (0.58, 1.08)	0.16	31

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**Table 2.** Prevalence of cardiovascular risk factors, medical conditions, and adherence among lecturers and staff to nutritional and physical activity guidelines.

	All (%)	Lecturer (%)	Staff (%)	OR (95% CI)	P value	National data (%)
Hypertension	252 (13.5)	82 (8.7)	121 (13)	0.54 (0.38, 0.790)	0.004	20.1
Diabetes	103 (5.5)	28 (3)	38 (4)	0.86 (0.48, 1.79)	0.89	6
Abnormal cholesterol	291 (15.6)	110 (11.7)	147 (15.8)	0.79 (0.49, 1.20)	0.18	49
Current smoker	202 (10.8)	84 (8.9)	133 (14.3)	0.58 (0.38, 0.87)	0.03	19.9
Cardiovascular medical conditions and stress (n=1862)						
MI	17 (0.9)	6 (0.6)	7 (0.7)	0.68 (0.14, 2.27)	0.578	1.9
PVD	19 (1)	21 (2.2)	24 (2.5)	0.69 (0.19, 2.2)	0.676	NA
Stroke	10 (0.5)	7 (0.7)	13 (1.3)	0.38 (0.05, 1.46)	0.193	1.3
Stress	587 (31.5)	257 (27.5)	332 (35.7)	0.59 (0.47, 0.79)	0.002	1.9
Dietary intake (n=1711)						
Met 5-a-day F&V	334 (18.4)	138 (14.7)	148 (15.9)	0.85 (0.57, 1.17)	0.59	19
Oily fish > 1/week	897 (49.4)	499 (53.4)	435 (46.8)	1.32 (1.23, 1.65)	0.006	NA
Fat intake <85 g/day	223 (12.3)	128 (13.7)	105 (11.3)	1.28 (0.68, 1.82)	0.41	NA
NMESs <60 g/day	272 (15)	163 (17.4)	180 (19.3)	1.13 (0.69, 1.32)	0.69	NA
Physical activity (n=1711)						
IPAQ category 2 or 3	986 (57.6)	641 (68.7)	607 (65.3)	1.16 (0.79, 1.47)	0.39	58
IPAQ category 3	360 (21)	267 (28.3)	221 (23.7)	1.24 (1.11, 1.69)	0.06	NA
Muscle strength exercise	308 (18)	229 (24.5)	199 (21.4)	1.08 (0.68, 1.44)	0.18	NA
Attitudes and barriers (n=1711)						
Responsible towards health	1161 (67.8)	693 (74.2)	580 (62.4)	1.47 (1.18, 2.12)	0.002	NA
Working hours as a barrier	912 (53.3)	522 (55.9)	441 (47.4)	1.78 (1.34, 2.24)	<0.002	NA
A full-time job as a barrier	300 (17.5)	175 (18.7)	143 (15.3)	1.62 (1.12, 2.12)	0.01	NA
Lack of healthy options in the canteen	514 (30)	309 (33.1)	154 (16.5)	2.13 (1.49, 2.68)	<0.002	NA
Lack of fitness facilities	1145 (66.9)	694 (74.3)	609 (65.5)	1.39 (1.03, 1.89)	0.002	NA
Lack of support from manager	724 (42.3)	412 (44.1)	411 (44.2)	0.87 (0.67, 1.19)	0.89	NA

CI: confidence interval; MI: myocardial infarction; PVD: peripheral vascular disease; F&V: fruit and vegetables; NMESs: non-extrinsic milk sugars; IPAQ: International Physical Activity Questionnaire; NA: not available as proportions similar to the study.

and 28.3% of lecturers did PA category 3. Muscle strengthening exercises were carried out in each group by 24.5% of lecturers and 21.4% of staff (Table 2).

Lecturers (74.2%) feel responsible for their health. Most of the participants expressed that their working hours prevented them from staying fit. Lack of fitness facilities (66.9%), managerial support (42.3%), and healthy food choices in the canteen (30%) were also considered barriers to a healthy lifestyle.

## Discussion

This large-scale cross-sectional study at four universities in Indonesia explains the prevalence of cardiovascular risk and lifestyle during the current COVID-19 pandemic by describing it in terms of physical activity and food intake among lecturers and employees. It can be explained from our findings that half of the staff were obese or overweight without adhering to the recommended physical activity and dietary guidelines, which showed no significant difference between faculty and staff.

The findings showed that despite other risk factors being the same, smoking and high blood pressure were less preva-

lent among lecturers and staff. The majority of lecturers and employees show an attitude that they feel they own and enjoy and are responsible for their health, but many lecturers and employees consider the lack of fitness facilities, working hours, and managerial attitudes that do not support a healthy lifestyle.

The survey results explained that although the prevalence of diabetes and obesity among lecturers was the same as that of employees, it was lower than the adult population in Indonesia. At the national level, the problem of being overweight and diabetes also occurs as an international health problem. Surveys on cardiovascular health and lifestyle have been reported but to a lesser extent, performed mostly by physicians including cardiologists, who provide the same or even slightly better lifestyle outcomes and risk factors compared to their general population (Borgan et al., 2015; McGrady et al., 2007; Pardo et al., 2014; Temporelli et al., 2013).

Our survey results also show the same thing as other countries in terms of BMI range  $\geq 25$  kg/m<sup>2</sup> (WHO, 2020). The prevalence of smoking is much lower at the University due to the no-smoking policy in the University area as well

as awareness of the harmful effects of smoking (Frazer et al., 2016). Our study explains that the high prevalence of stress and depression is in line with previous studies and surveys (Health and Safety Executive, 2017), where the results show an increased prevalence of coronary heart disease and type 2 diabetes. Our survey results also reveal that the consumption of vegetables and five servings of fruit in both the faculty and staff groups is significantly lower than that of the same age group in the nationally reported survey (Public Health England, 2016). Our survey results show that there is no significant difference between lecturers and staff with low adherence with an NMES intake of less than 60 g/day and total fat less than 85 g/day, according to national data.

The factors causing the low intake include low personal food intake habits which are also supported by long working hours and a lack of choices for vegetable and fruit intake. The recommended physical activity indicates that the lecturer does not show better appraisal results than the staff, it also shows conformity with that reported in the general population (Taylor, 2014), physical activity has shown many cardiovascular benefits that can be done both at work and in leisure time (Lear et al., 2017). The results of the survey on low muscle strengthening exercises are better than the same age population but have not been reported in national reports.

Several lifestyle problems between lecturers and staff, one of which is due to lack of time or being too busy, major obstacles (Morrow et al., 2011). Physical activity can improve cardiovascular health and reduce the stress that occurs between lecturers and staff due to a bad lifestyle.

#### Limitations

This study demonstrates that the university population's healthy lifestyles may be compromised in the event of future COVID-19 pandemic outbreaks or other pandemics around the world. Limitations and sources of bias often occur when cross-sectional surveys display self-reported data because they are anonymous, making it impossible to compare respondents with non-respondents (Fowler, 2014). This

#### Acknowledgments

We would like to thank the University of around in Kalimantan Barat and all the lectures and staff who participated in the research.

#### Conflict of Interest

The authors declare that there are no conflicts of interest.

**Received:** 04 March 2022 | **Accepted:** 17 September 2022 | **Published:** 01 October 2022

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cross-sectional survey's sample size was relatively large and exceeded the starting point of the sample size calculation. The study's comparison of outcome factor measurement before and during the epidemic is a crucial component. Sampling via web-based surveys is often error-prone and response rates are low. However, because some of the differences that were discovered are clinically slight, general comments and interpretations of the current data should be used with caution. The self-reported data, which raises the possibility of reporting bias, was one of the study's major shortcomings. Efforts have been made to obtain the maximum response rate by sending a minimum of two emails provided by human resources departments at all Universities for six weeks which are used by faculty and staff so that it can be ascertained that the sample is representative of the faculty distribution and staff. Selection bias can occur due to the lack of participation of lecturers and employees who are not guided by healthy and unhealthy lifestyles. Participation in these surveys is voluntary and therefore no attempt is made to enforce it from self-reported samples and data which may result in a lack of understanding of body weight and risk factors, physical activity, or diet-related questions. The absence of reporting information on the participants' socioeconomic level, which could be crucial for the research, is another problem.

#### Conclusion

The research revealed that COVID-19 confinement harmed the healthy lifestyles of university lecturers and personnel in Indonesia. Very few lecturers and staff can adhere to an active lifestyle every day of the week and tend to do physical activity for a longer period in a few days or regulate dietary intake during the COVID-19 pandemic. To try to lessen its effects, modified strategies should be established. Restrictions may be a protective factor because they reduced aspects of drug and poisonous substance usage. In this regard, the research has shown the need for developing interventions that encourage the population of Indonesian universities to adopt healthy lifestyles while under COVID-19 quarantine.

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