

## Post-pandemic behaviour among Indonesian young adults: a mixed-method study on physical activity, dietary patterns, and sleep habits

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### Abstract

**Purpose:** This study investigates the post-pandemic habits of Indonesian young adults aged 18 to 23 in Indonesia. It uses a cross-sectional design to evaluate their physical activity levels, dietary patterns, and sleep habits. **Methods:** A mixed-methods, cross-sectional study used an online questionnaire with quantitative and qualitative data from 260 purposively sampled respondents. Quantitative data were collected and analysed using Spearman's correlation. The quantitative data comprise three assessments: the International Physical Activity Questionnaire (IPAQ), dietary patterns, and sleep routines. Additionally, qualitative data were gathered through one open-ended question to explore perceived changes in lifestyle habits and were analysed using thematic analysis. **Results:** A sedentary lifestyle markedly affects various aspects of post-pandemic wellbeing among young adults, with three main changes. Firstly, 80.4% reported exercising fewer than 10 times a month or for less than 150 minutes per week. Secondly, 58.1% preferred ultra-processed foods such as boba drinks, coffee, cereals, tteokbokki, and takoyaki, citing current trends and convenience as influences. Thirdly, 65.4% experienced inadequate sleep, averaging 6-7 hours per night, linked to high screen time. Personal challenges and behavioural shifts post-pandemic were also evident in subjective responses during the transition to what has become the normalised modern lifestyle. **Conclusion:** Inactivity, poor diet, and lack of sleep emphasise the importance of campaigns encouraging healthier lifestyles among young adults. Tackling these interconnected risks requires coordinated efforts from universities, public health authorities, and policymakers to promote active routines, digital balance, and preventative health strategies for youth.

**Keywords:** diet pattern; physical activity level; post-pandemic habits; sedentary behaviour; sleep habits

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## INTRODUCTION

Young adulthood is a vital developmental period characterised by the formation of long-term behavioural patterns that influence health trajectories throughout life. Worldwide, health problems among young adults have risen and become notable public

health concerns [1,2]. The increase in physical inactivity, higher intake of ultra-processed foods, and ongoing sleep deprivation are closely linked to non-communicable diseases [3-5]. From a physical anthropology perspective, these trends indicate sedentary behaviour and a mismatch with human biological requirements, which, from an evolutionary standpoint,

demand regular movement [6]. However, rapid socio-technological transitions may lead to maladaptive health outcomes when behavioural environments change faster than physiological capacities can adapt.

The COVID-19 pandemic worsened this mismatch. Lockdowns, mobility restrictions, and remote education significantly changed daily routines. Food access shifted towards convenience and delivery systems, and sleep patterns were disturbed by prolonged digital exposure and altered social rhythms [7,8]. Although the COVID-19 pandemic officially ended, the behaviours established during it may have persisted and become normalised. From a biocultural perspective, temporary adaptations during the pandemic might lead to lasting behavioural patterns when reinforced by institutional and technological structures [9].

In Indonesia, young adults are the largest demographic group, comprising about 64.16 million people in 2023 [10]. The Indonesian government's stated, "*Indonesia Emas 2045*" (2045 Golden Indonesia) vision considers demographics both a challenge and an opportunity, with the country's future largely relying on the current generation [11]. As Indonesia continues to experience the pandemic's ongoing effects on daily life, a key question arises: "How has the pandemic altered the daily routines of this significant group?"

Previous studies have documented significant changes across various areas of young adults' lives. Especially in their exercise levels, psychological well-being, shopping habits, and social connections [12–14]. For instance, research shows a significant decrease in exercise, which in turn leads to higher stress levels and altered eating patterns. It increases the risk of obesity among the young population [15]. Increased social media usage during lockdowns has been associated with declining mental health, as more young adults are expressing feelings of stress and anxiety [16,17]. Moreover, according to a survey by the International Youth Foundation, 33% of Indonesian youth expressed feeling overwhelmed by stress [18].

These studies provide insights, but there is a gap in understanding the urgency of a post-pandemic sedentary lifestyle. Therefore, this research aims to examine the persistence and interrelationship of physical activity, dietary patterns, sleep habits, and sedentary behaviour among Indonesian young adults in the post-pandemic period. By adopting a biocultural perspective, this research seeks to understand how pandemic-induced adaptation may have reshaped embodied routines and contributed to the normalisation of health-related behaviours among youth.

## METHODS

### Study design and settings

This mixed-method, cross-sectional study utilised an online questionnaire that included both quantitative and qualitative data. We focused on individuals aged 18 to 23, aligning with Indonesia's legal definition of youth. We employed purposive sampling using Cochran's formula at a 95% confidence level, resulting in a sample of 732 active university students from the Faculty of Social and Political Sciences, Universitas Airlangga [19]. Based on our sampling technique, we established the inclusion criteria as follows: (1) active university students; (2) born between 2003 and 2008; (3) experienced young adulthood during the COVID-19 pandemic; and (4) completed the online questionnaire, including both quantitative and qualitative questions. Initially, we had 277 participants; after applying the inclusion criteria, we collected 260 valid responses, exceeding the minimum requirement and providing sufficient statistical power.

### Variables

We used a mixed-methods approach, integrating a quantitative questionnaire with one open-ended qualitative question. The online questionnaire created with Google Forms was distributed via social media and messaging platforms (WhatsApp). Data were collected between 11 December 2024 and 14 March 2025. The quantitative questionnaire was based on three validated scales: a modified version of the International Physical Activity Questionnaire (IPAQ) [19], a dietary pattern assessment [20], and the sleep routines questionnaire [21]. The modification was minor, with wording adjustments made to ensure contextual relevance for Indonesian young adults while preserving the original construct dimensions intact. Responses were measured using a Likert scale from 1 (strongly disagree) to 5 (strongly agree) to assess behavioural intentions and lifestyle changes.

One open-ended question on the questionnaire sought qualitative insights into lifestyle changes before and after the pandemic. The question: "Do you feel any shifts before and after the pandemic? Please explain," prompted respondents to share their experiences and offer context for these lifestyle changes. The open-ended question elicited narrative responses, which we treated as qualitative data. The participants were chosen from the same purposive sampling group and used the same platform as the respondents of the online questionnaire. Of 260 participants, 171 shared

detailed narratives, characterised by information richness, focusing on meaningful descriptions of behavioural changes and personal experiences. This approach prioritised depth and relevance over sheer response count. Additionally, the number of informants was deemed sufficient because recurring themes and patterns appeared consistently across responses, demonstrating the dataset's robustness for interpretative analysis. From these 171 responses, a sample of 11 participants was selected for direct quotation in the article. These individuals were selected to represent a range of experiences and recurring themes identified in the analysis, rather than based on statistical distribution. The aim was to deepen interpretation and highlight key data patterns.

### Data analysis

Quantitative data were analysed using Spearman's correlation coefficient to assess correlations among more than two variables based on the Likert and ordinal scales. The strength of the correlation between variables is indicated by the correlation coefficient [22]. These variables include physical activity levels, dietary patterns, sleep habits, and lifestyle changes associated with sedentary behaviour. Moreover, descriptive statistics summarised respondents' demographics and questionnaire data using SPSS 26.0.

On the other hand, thematic analysis was used to analyse the qualitative data from physical anthropology and biocultural perspectives using Atlas.ti [23,24]. Open-ended responses were coded to identify recurring patterns, then categorised into broader themes, including sedentary behaviour, digital dependency, dietary changes, and sleep disruption.

## RESULTS

### Characteristics of respondents

Table 1 shows the demographic characteristics of the respondents. Of the 260 active university students participating in this study, 75.0% were female ( $n = 195$ ), while males comprised 25.0% ( $n = 65$ ). The age distribution was primarily concentrated in the 20–21-year age group (78.5%,  $n = 204$ ), followed by the 22–23-year group (16.5%,  $n = 43$ ). Participants aged 18–19 years accounted for a smaller proportion of the sample (5.0%,  $n = 13$ ). This distribution reflects the target population of Indonesian young adults who experienced significant educational and social changes during the COVID-19 period. Regarding ethnic background, respondents represented a diverse array of groups, highlighting Indonesia's multicultural fabric. The majority identified as Javanese (70.4%,  $n = 183$ ), followed by Minangkabau (5.0%,  $n = 13$ ) and Sundanese

**Table 1. Characteristics of respondents (n = 260)**

Characteristics	n (%)
<b>Sex</b>	
Female	195 (75.0)
Male	65 (25.0)
<b>Age (years)</b>	
18-19	13 (5.0)
20-21	204 (78.5)
22-23	43 (16.5)
<b>Ethnic groups</b>	
Javanese	183 (70.4)
Minangkabau	13 (5.0)
Sundanese	10 (3.8)
Balinese	7 (2.7)
Chinese-Indonesian	7 (2.7)
Banjarese	5 (1.9)
Batak	5 (1.9)
Betawi	5 (1.9)
Buginese	5 (1.9)
Madurese	5 (1.9)
Makassarese	5 (1.9)
Others*	10 (3.8)

**Note:** \*Others include: Arabic (1), Dayak (2), Kaili (1), North Moluccan (1), Malay (2), Sasak (2), and Sikka (1).

**Table 2. Characteristics of qualitative study participants (n = 11)**

Code	Sex	Age (years)	Ethnic
R89	Female	22	Javanese
R178	Female	18	Javanese
R251	Male	23	Javanese
R223	Female	20	Javanese
R37	Female	19	Javanese
R182	Female	21	Javanese
R2	Female	20	Chinese
R163	Female	20	Javanese
R122	Female	21	Javanese
R5	Female	20	Javanese
R233	Male	20	Javanese

(3.8%,  $n = 10$ ). Several other ethnic groups were represented in smaller numbers, including Balinese and Chinese-Indonesian (each 2.7%,  $n = 7$ ) and Banjarese, Batak, Betawi, Buginese, Madurese, and Makassarese (each 1.9%,  $n = 5$ ). Additional ethnic affiliations, such as Arabic, Dayak, Kaili, North Moluccan, Malay, Sasak, and Sikka, were grouped into the "Others" category, representing 3.8% ( $n = 10$ ) of the total sample. This distribution indicates considerable ethnic diversity, capturing a broad socio-cultural cross-section of Indonesian young adults.

The selected direct quotations from qualitative informants in Table 2 show a fairly consistent demographic profile, mainly female participants aged 18–22 years. Most are of Javanese ethnicity, reflecting the university's dominant demographic, with a minority representing groups such as Chinese-Indonesian. The age range suggests that the narratives mainly depict experiences during the transition from late adolescence to early adulthood, a crucial time for shaping lifestyles. The high number of female respondents may also indicate greater engagement or willingness to share thoughtful responses in the open-ended survey. Over-

all, although the qualitative sample offers valuable, context-rich insights, it more closely represents the dominant socio-cultural group in the study area than a fully diverse cross-section of Indonesian youth, a point to keep in mind when interpreting the results.

Table 3 shows that Spearman’s rank correlation analysis indicated a sedentary lifestyle was significantly associated with all three behavioural aspects. The strongest correlation was observed between dietary patterns and sedentary lifestyle ( $\rho = 0.812, p < 0.001$ ), showing a strong positive association. Physical activity levels were also moderately and positively correlated with sedentary behaviour ( $\rho = 0.551, p < 0.001$ ) and with sleep habits ( $\rho = 0.435, p < 0.001$ ). These results suggest that sedentary behaviour is a central behavioural factor associated with multiple dimensions of post-pandemic health patterns among young adults.

In contrast, the connections between physical activity, dietary patterns, and sleep habits were weak and not statistically significant. Although a slight positive link between physical activity and dietary patterns was observed, it did not reach statistical significance. No significant relationships were found between physical activity and sleep habits or between dietary patterns and sleep habits. Overall, a sedentary lifestyle is a key factor in various aspects of post-pandemic wellness among young adults, suggesting that individual health behaviours tend to operate independently rather than as interconnected lifestyle patterns within this population.

**Table 3. Spearman’s rank correlation analysis of health behaviors (n = 260)**

Variable	Spearman’s $\rho$	p-value	Interpretation
<b>Sedentary lifestyle vs:</b>			
Physical activity levels	0.551	< 0.001	Moderate positive
Diet pattern	0.812	< 0.001	Very strong positive
Sleep habits	0.435	< 0.001	Moderate positive
<b>Inter-variable correlations:</b>			
Physical activity vs. diet pattern	0.141	0.230	Not significant
Physical activity vs. sleep habits	0.106	0.087	Not significant
Diet pattern vs. sleep habits	0.098	0.117	Not significant

Note:  $\rho$  = Spearman’s rank correlation coefficient. Statistical significance was set at  $p < 0.05$ .

**Physical activities in a digital age**

Table 4 shows that 80.4% of young adults exercise less than 10 times a month or for fewer than 150 minutes per week, a trend linked to increased reliance on digital technologies, which can lead to sedentary behaviour. Only 1.2% exceeded the recommended activity level of more than 20 times per month.

**Table 4. The post-pandemic habits**

Daily Habits	%
<b>Total exercise in month (times)</b>	
< 10	80.4
11 - 15	11.9
16 - 20	6.5
> 20	1.2
<b>Daily inactivity (total sitting hours)</b>	
< 6	22.7
7 - 8	47.3
9 - 10	20.4
> 10	9.6
<b>Food preference</b>	
Fast food	14.2
Processed food	58.1
Slow food	27.7
<b>Average daily sleeping habits (hours)</b>	
< 5	23.8
6 - 7	65.4
8 - 9	9.6
> 10	1.2

Additionally, qualitative data from open-ended responses confirmed a shift in lifestyle habits post-pandemic. Two respondents expressed:

*“I have rarely done sports since 2022, and I always feel tired all the time. I used to enjoy going swimming with my dad, but now he is gone because of the pandemic”* (R89, Female, 22, Javanese)

*“I was kind of a sports enthusiast back then, before COVID-19, but now it is like an old habit. I want to shape my body again, but with the university’s agenda and all my studies, I cannot figure out how to do it properly. Or maybe I am just lazy now”* (R178, Female, 18, Javanese)

Furthermore, we discovered that 47.3% of respondents spend 7 to 8 hours per day on sedentary activities, reflecting prolonged sitting behaviour. Meanwhile, 20.4% sit for 9 to 10 hours, and 9.6% sit for more than 10 hours. Conversely, 22.7% report sitting for less than 6 hours daily, demonstrating awareness of the need for more movement in their daily routines in the digital age. Most respondents spend their time studying, socialising, watching films, playing games, and engaging in other activities typically performed while sitting. Qualitative data from the open-ended responses further confirmed these shifting post-pandemic lifestyle habits.

*“Before the pandemic, I kept a balanced lifestyle, going to the gym twice a week. I’m in work mode almost 24/7 because it is my final year at university. I want to graduate quickly, and finding a job as a new graduate was challenging after the pandemic, and I do not want to mess it up”* (R251, Male, 23, Javanese)

*“It cannot be helped, though! We have to sit in class. Even when we go out to a café, we still eat while seated. But I realised that before the pandemic, we had many practical classes outside, and now it is only class-based learning. Only a few field classes remain. I do not know why they are no longer conducted. The pandemic effect is the worst!”* (R223, Female, 20, Javanese)

Another respondent noted changes in social behaviour:

*“I do not go outside as much as I did before COVID. I have become a bit more introverted now. I prefer watching K-dramas and TV series instead of going out. It is not so bad. I still maintain a good relationship with my friends through social media!”* (R37, Female, 19, Javanese).

*“I can spend more than 11 hours now doing my work on the laptop, yet I used to hate it before COVID. I used to enjoy hanging out and studying with friends outside, but now I prefer being alone”* (R182, Female, 21, Javanese).

### Daily dietary patterns

This study found that 58.1% of young adults make thoughtful food choices, preferring ultra-processed foods such as boba drinks, coffee, cereals, and savoury snacks (chips, *tteokbokki*, *takoyaki*). This indicates a complex interplay of cultural influences and socio-economic factors that impact their dietary decisions. Young adults recognise that convenience and accessibility significantly influence their choices.

As for the additional data, qualitative responses confirm shifting lifestyle habits post-pandemic. Two respondents noted:

*“I cannot start the day properly without coffee now, but everybody does it. I guess that is pretty normal for Gen Z. I am not really into rice; I just drink coffee and snack on *rabokki* or *tteokbokki* for my meals. I know it was pretty expensive. This habit started during the pandemic, when I ordered a lot of junk food to cope. I guess I become more consumptive now”* (R2, Female, 20, Chinese-Indonesian).

*“I found a suitable diet type while scrolling on Instagram. Sometimes, I give up due to a lack of willpower because consistency is my biggest challenge! My mom used to prepare meals, but now I eat out since I do not have time to cook, and there are plenty of food stalls near us”* (R163, Female, 20, Javanese)

On the contrary, other respondents mentioned changes in food choices after the pandemic:

*“COVID-19 makes me reconsider purchases, especially food. I now choose healthy options over fast food! It shows me the pandemic was a chance to rethink my life, and I chose to be different. From now on, I will value my life with healthy food and a healthier lifestyle”* (R122, Female, 21, Javanese).

These quotations underscore the pandemic's complex impact on young people's wellness habits, particularly in their food preferences. As shown in Table 4, there was a preference for ultra-processed foods over whole foods. This finding highlights the importance of educational interventions that emphasise the long-term nutritional value of food choices, delivered through appropriate media.

### The rise of short-sleep population

We found 65.4% of respondents slept 6-7 hours per night, while 23.8% had less than 5 hours. This pattern indicates widespread inadequate sleep among young adults in Indonesia. The effect of digital devices, particularly at night, significantly disrupts sleep patterns. These findings emphasise the urgent need for educational programmes to improve sleep hygiene and raise awareness about the risks of prolonged screen exposure in our digital age.

Qualitative data from open-ended responses confirm these changing post-pandemic lifestyle habits:

*“Yes. Everything is ruined! I had a great routine before the pandemic, but now I have become an owl. I cannot go to sleep without scrolling Instagram, and then I realise it is already 3 a.m.”* (R5, Female, 20, Javanese).

Another respondent shared a similar experience after the pandemic:

*“I easily get bored with everything now, and I admit that sleeping has become my guilty pleasure”* (R233, Male, 20, Javanese).

## DISCUSSION

This study examined the persistence of post-pandemic lifestyle behaviours among Indonesian young adults, focusing on physical activity, dietary patterns, and sleep habits that contribute to a sedentary lifestyle. We identified three key patterns: firstly, a substantial proportion of respondents reported low levels of physical activity. Secondly, dietary patterns were strongly associated with sedentary routines, as reflected in preferences for

ultra-processed and convenience foods. Thirdly, sleep habits were characterised by insufficient duration and irregularity, linked to prolonged screen exposure. Additionally, a sedentary lifestyle emerged as the most strongly correlated variable across behavioural domains, suggesting that prolonged inactivity serves as a structural anchor that shapes other health behaviours.

### **The post-pandemic shift in daily activities**

Although COVID-19 has ended, this study indicates that lifestyle patterns established during the pandemic have persisted and normalised within young adults' routines. During the lockdowns, it was difficult to balance exercise and mental health [15]. WHO recommends adults engage in 150 minutes of moderate-to-vigorous physical activity weekly for various health benefits, including improved cardiovascular health, muscle strength, and cognitive function [25]. The restrictions on outdoor activities, sports, and school physical education programs were reduced, limiting already scarce opportunities [26]. This raises concerns about long-term health effects on physical, mental, and emotional well-being. From a physical anthropological perspective, human mobility has benefited us for centuries. However, prolonged sitting, contrary to our evolutionary adaptations, can be harmful, leading to musculoskeletal and metabolic disorders [6,27]. Young adults now spend more time sitting and are less active since the pandemic. Digital technologies worsen this by promoting more screen time and virtual interactions [28–30].

This study also highlights a worrying trend in physical activity among Indonesian young adults. The pandemic's reliance on digital technologies has encouraged sedentary behaviour. This aligns with literature, such as Nowak et al. (2019), which shows a link between increased screen time and reduced physical activity [29]. Few participants achieved the recommended exercise levels, highlighting the importance of environmental factors, such as social support, in encouraging physical activity. This calls for targeted interventions to re-engage young adults in active lifestyles and to incorporate fitness into daily routines, especially post-pandemic. We also found that the COVID-19 pandemic increased inactivity and reduced social engagement. It indicates a shift towards solitary, screen-focused activities. Extended sedentary behaviour due to academic and work obligations underscores the need for strategies that promote breaks and physical activity to mitigate negative health effects. Humans are evolutionarily designed for movement, but current trends of inactivity could negatively affect posture over time. Marijančić (2023)

notes that insufficient physical activity among college students correlates with trunk muscle imbalances and posture problems [31]. Regarding the biocultural approach, this behaviour is part of a cultural shift that young adults use as a coping mechanism during the pandemic and has become a habit nowadays. These issues likely affect youth worldwide. Post-COVID habits persist, leading to reliance on online classes and virtual meetings, contributing to more sedentary lifestyles among young adults.

### **The paradox of modern diet pattern**

Globalisation, socio-economic factors, cultural influence, and technology have considerably altered young adults' eating habits. Digital networks expose this generation to international culinary influences, leading to a preference for processed and ultra-processed foods in urban areas [32]. Ultra-processed foods, high in sugar, salt, unhealthy fats, and additives, are popular due to their low cost, convenience, and heavy marketing [33]. This change has led to a concerning decline in diet quality, particularly in lower- and middle-income countries like Indonesia, where calorie-dense, nutrient-poor foods are increasingly consumed. Young adults who often eat fast food are more prone to malnutrition and chronic diseases like obesity, high blood pressure, and type 2 diabetes [34]. Additionally, consuming sugary drinks has contributed to the rise of dental issues and metabolic disorders among young people [35].

There is a disconnect between the concept of a healthy diet outlined in Indonesia's "*Isi Piringku*" guidelines and the meals young Indonesians consume [36]. This paradox affects their choices, as they want healthy food but see it as expensive. However, the idea that healthy options can be affordable does not reach them. Young adults often seek information through social media, while the government relies on traditional campaigns. As young adults increasingly encounter global food cultures, it is essential to help them understand the long-term health impacts of their dietary choices. Tailored educational initiatives that engage youth in discussions about nutrition, cooking skills, and the importance of maintaining a well-rounded diet are vital for addressing these growing concerns. The government should consider strategies to empower young adults to make healthier food choices. With the right messaging and digital platforms, this information will likely resonate well with the younger generation.

### **The short-sleeper generation**

Rest is crucial for health, cognitive functions, and emotional stability, yet it is often overlooked. In the

post-pandemic era, many young adults suffer from sleep deprivation due to lifestyle changes, increased digital device use, and modern pressures. The growing “short-sleep population”, who get less than 7-9 hours of sleep, faces health issues like obesity, heart disease, mental disorders, cognitive decline, and other metabolic disorders [37].

Research found that about 33% of teens get fewer than 6 hours of sleep nightly, due to screen time, academic stress, and socioeconomic factors [38]. Artificial light from devices and extended social media or gaming time disrupt young adults’ natural sleep patterns, leading to difficulties with restful sleep [39]. The growing demands of school and work disrupt sleep patterns, including extended hours and early start times. Poor sleep can cause immediate and long-term health issues, reducing cognitive function and mood. Chronic sleep deprivation may lead to metabolic disorders, weakened immunity, and increased risk of depression and anxiety [40]. Tackling inadequate sleep habits in young adults, such as excessive screen use and stress, is crucial for health. Another concern was that we found most respondents slept only 6-7 hours a night. Poor sleep is linked to cognitive impairments and metabolic disorders [8,41].

Qualitative responses revealed that digital device usage affects sleep hygiene, leading many to adopt later bedtimes due to social media. Insufficient sleep disrupts academic and work performance, alters mood, impairs decision-making, and weakens cognitive skills, challenging productivity in the generation [42]. This shift reflects a post-pandemic lifestyle change, in which the absence of routines has led to a more sedentary, isolated existence. Kriacioniene (2025) also found similar results and made this a major global issue [43]. It indicated that wellness challenges faced by Indonesian young adults are structurally embedded in post-pandemic lifestyle change. Recognising these changes among respondents highlights the need for awareness programmes on sleep health, emphasising the establishment of healthy sleep habits in a digital world. Furthermore, stakeholders can foster a healthier generation by addressing the connections between sleep, physical activity, and nutrition.

### **Implication for public health practice**

This study highlights important implications for public health intervention strategies targeting young adults. Firstly, interventions should move beyond encouraging isolated behaviours and instead focus on the sedentary lifestyle as a systemic behavioural pattern ingrained in academic and digital settings. Universities and educational institutions should consider structural adjustments, such as incorporating

movement breaks, minimising long periods of screen-based instruction where possible, and promoting hybrid learning models that incorporate physical activity. Second, dietary interventions should include contextual Education that addresses convenience-driven food choices. Promoting nutritional literacy programmes aligned with sustainable and culturally relevant dietary practices may help counter the normalisation of ultra-processed food consumption. Third, sleep hygiene initiatives should specifically target digital dependency, including awareness campaigns about screen exposure and circadian rhythm disruption. Given that young adults operate within highly digitised ecosystems, digital wellness literacy should become an essential component of health promotion strategies.

## **CONCLUSION**

This research highlights that sedentary lifestyles, dietary preferences, and insufficient sleep remain normalised among Indonesian young adults in the post-pandemic era. These behaviours are interconnected and have evolved as adaptations to increasingly digital academic and social environments. To tackle these issues, universities should incorporate structured movement policies into their schedules and promote programs that encourage digital balance. Public health officials need to create targeted campaigns to raise awareness of the risks of sedentary behaviour and improve sleep hygiene among young adults. Policy-makers should also integrate youth-focused health promotion strategies into national wellness policies, prioritising prevention over reactive healthcare. Viewing sedentary lifestyles as a systemic behavioural issue rather than an individual fault allows stakeholders to make sustainable health improvements for youth and their long-term well-being.

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### **Authors’ contributions**

R.S.P.: conceptualisation, data curation, methodology, investigation, original draft. F.I.P.: software and proofreading. R.A.P.: formal analysis and validation. C.H.: data curation, funding acquisition, and project administration. All authors approved the final manuscript.

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### Data availability

The data supporting this study can be obtained from the corresponding author upon reasonable request through the official institution or affiliations.

### Ethic statement

This study was conducted in accordance with the Declaration of Helsinki and approved by the Institutional Ethical Review Board of the Faculty of Social and Political Sciences, Universitas Airlangga (8810/B/UN3.FISIP/III/PT./2024).

### Conflict of interest

No potential conflict of interest was reported by the authors.

### Use of artificial intelligence (AI)

The Grammarly application has been used to enhance clarity and language.

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