

## Outline Korespondensi

Jurnal Promkes: The Indonesian Journal of Health Promotion and Health Education

Title : Opportunity for a Healthy Campus Program as a Sustainable

Development Goal: Assessing Lifestyle Factor and Mental Health Status

- Tahap 1. Pre Submit : CALL FOR PAPER 2024 (Special Issue January 2024) the Special Issue 2024 with the topic "Health Promotion for SDGs" .-30 November 2023
- Tahap 2. Submit Artikel : Submission Acknowledgement -5 Desember 2023  
Re submit : Submission acknowledgement – 6 Desember 2023
- Tahap 3. Hasil Reviewer : 20 Desember 2023
- Tahap 4. Revisi artikel : 27 Desember 2023
- Tahap 5. Artikel diterima : 27 Desember 2023
- Tahap 6 : Pembayaran APC dan kelengkapannya : 28 Desember 2024
- Tahap 7: Letter of Acceptance : 28 Desember 2023
- Tahap 8. Artikel Terbit 26 Januari 2024

## Tahap 1. Pre Submit- CALL FOR PAPER 2024 (Special Issue January 2024) –30 November 2024

---

### Fwd: [JPK] CALL FOR PAPER 2024 (Special Issue January 2024)

3 pesan

Khoiriyah Isni <khoiriyah.isni@ikm.uad.ac.id>

30 November 2023 pukul 10.33

Kepada: Heni Trisnowati <heni.trisnowati@pascakesmas.uad.ac.id>

Kak hen, siapa tau butuh utk publikasi. Terbit jan bsk. Sinta 2

----- Forwarded message -----

From: **mrs. Riris D. Rachmayanti** <[riris.diana@gmail.com](mailto:riris.diana@gmail.com)>

Date: Thu, 30 Nov 2023, 10:28 am

Subject: [SPAM] [JPK] CALL FOR PAPER 2024 (Special Issue January 2024)

To: Khoiriyah <[khoiriyah.isni@ikm.uad.ac.id](mailto:khoiriyah.isni@ikm.uad.ac.id)>

### CALL FOR PAPER 2024 (Special Issue January 2024)

CALL FOR PAPERS!

Join our Call for Papers for the Special Issue 2024 with the topic "Health Promotion for SDGs".

Visit our website to read the [full announcement](#).

Jurnal Promkes: The Indonesian Journal of Health Promotion and Health Education <http://e-journal.unair.ac.id/index.php/PROMKES>

---

#### UNIVERSITAS AHMAD DAHLAN

*Kampus 1:* Jln. Kaapas No. 9 Yogyakarta

*Kampus 2:* Jl. Pramuka 42, Sidikan, Umbulharjo, Yogyakarta 55161

*Kampus 3:* Jl. Prof. Dr. Soepomo, S.H., Janturan, Wunguboto, Umbulharjo, Yogyakarta 55164

*Kampus 4:* Jl. Ringroad Selatan, Yogyakarta

*Kampus 5:* Jl. Ki Aqeng Pemanahan 19, Yogyakarta

#### Kontak

Email: [info@uad.ac.id](mailto:info@uad.ac.id)

Telp. : (0274) 563515, 511830, 379418, 371120

Fax. : (0274) 564604

**IMG-20231129-WA0023.jpg**

336K

---

## Tahap 2. Submit & Submission Acknowledgement: 5 Desember 2023

UNIVERSITAS  
AHMAD DAHLAN

Heni Trisnowati <heni.trisnowati@pascakesmas.uad.ac.id>

---

### [JPK] Submission Acknowledgement

6 pesan

---

**Hario Megatsari** <jpromkes@fkm.unair.ac.id>

5 Desember 2023 pukul 21.55

Kepada: Heni Trisnowati <heni.trisnowati@pascakesmas.uad.ac.id>

Heni Trisnowati:

Thank you for submitting the manuscript, "The Relationship Between Demographic and Lifestyle Factors with Mental Health Status among Campus Community in Yogyakarta, Indonesia" to Jurnal Promkes: The Indonesian Journal of Health Promotion and Health Education. With the online journal management system that we are using, you will be able to track its progress through the editorial process by logging in to the journal web site:

Submission URL: <https://e-journal.unair.ac.id/PROMKES/authorDashboard/submission/52271>

Username: hentris

If you have any questions, please contact me. Thank you for considering this journal as a venue for your work.

Hario Megatsari

Indonesian Journal of Health Promotion and Health Education <http://e-journal.unair.ac.id/index.php/PROMKES> Jurnal Promkes: The

---

**Hario Megatsari** <jpromkes@fkm.unair.ac.id>

6 Desember 2023 pukul 04.52

Kepada: Heni Trisnowati <heni.trisnowati@pascakesmas.uad.ac.id>

Heni Trisnowati:

Thank you for submitting the manuscript, "The Relationship Between Demographic and Lifestyle Factors with Mental Health Status among Campus Community in Yogyakarta, Indonesia" to Jurnal Promkes: The Indonesian Journal of Health Promotion and Health Education. With the online journal management system that we are using, you will be able to track its progress through the editorial process by logging in to the journal web site:

Submission URL: <https://e-journal.unair.ac.id/PROMKES/authorDashboard/submission/52277>

[Kutipan teks disembunyikan]

---

**Heni Trisnowati** <heni.trisnowati@pascakesmas.uad.ac.id>

6 Desember 2023 pukul 05.01

Kepada: Hario Megatsari <jpromkes@fkm.unair.ac.id>

Dear Editor in Chief,

Hario Megatsari

We would like to inform you that our paper entitled "The Relationship Between Demographic and Lifestyle Factors with Mental Health Status among Campus Community in Yogyakarta, Indonesia" with submission number 52271 is incomplete so we are resubmitted with submission number 52277.

Thank you for your attention

**Best regards**

**Dr. Heni Trisnowati, SKM., MPH**

Postgraduate Program of Public Health

Faculty of Public Health Universitas Ahmad Dahlan (UAD)

Jl. Prof. DR. Soepomo Sh, Umbulharjo Yogyakarta Indonesia

[Kutipan teks disembunyikan]

---

**Jurnal Promkes FKM UNAIR** <jpromkes@fkm.unair.ac.id>

6 Desember 2023 pukul 08.59

Kepada: Heni Trisnowati <heni.trisnowati@pascakesmas.uad.ac.id>

Dear Author,

Kami hanya ingin mengonfirmasi, untuk naskah ini apakah untuk penerimaan issue reguler atau special issue?

Mohon konfirmasinya, terima kasih

[Kutipan teks disembunyikan]  
[Kutipan teks disembunyikan]

**UNIVERSITAS AHMAD DAHLAN**

Kampus 1: Jln. Kaos No. 9 Yogyakarta

Kampus 2: Jl. Pramuka 42, Sidikan, Umbulharjo, Yogyakarta 55161

Kampus 3: Jl. Prof. Dr. Soepomo, S.H., Janturan, Wanungboto, Umbulharjo, Yogyakarta 55164

Kampus 4: Jl. Ringroad Selatan, Yogyakarta

Kampus 5: Jl. Ki Ageng Pemanahan 19, Yogyakarta

**Kontak**

Email: [info@uad.ac.id](mailto:info@uad.ac.id)

Telp. : (0274) 563515, 511830, 379418, 371120

Fax. : (0274) 564604

Best Regards,

**EDITORIAL TEAM JURNAL PROMKES**

Faculty of Public Health, Universitas Airlangga

Campus C Universitas Airlangga

Jl. Mulyorejo Campus C UNAIR, Surabaya 60115, Indonesia.

E-mail: [jurnal.promkes@gmail.com](mailto:jurnal.promkes@gmail.com) / [jpromkes@fkm.unair.ac.id](mailto:jpromkes@fkm.unair.ac.id)

Phone: +62813-9351-4414

**Heni Trisnowati** <[heni.trisnowati@pascakesmas.uad.ac.id](mailto:heni.trisnowati@pascakesmas.uad.ac.id)>  
Kepada: Jurnal Promkes FKM UNAIR <[jpromkes@fkm.unair.ac.id](mailto:jpromkes@fkm.unair.ac.id)>

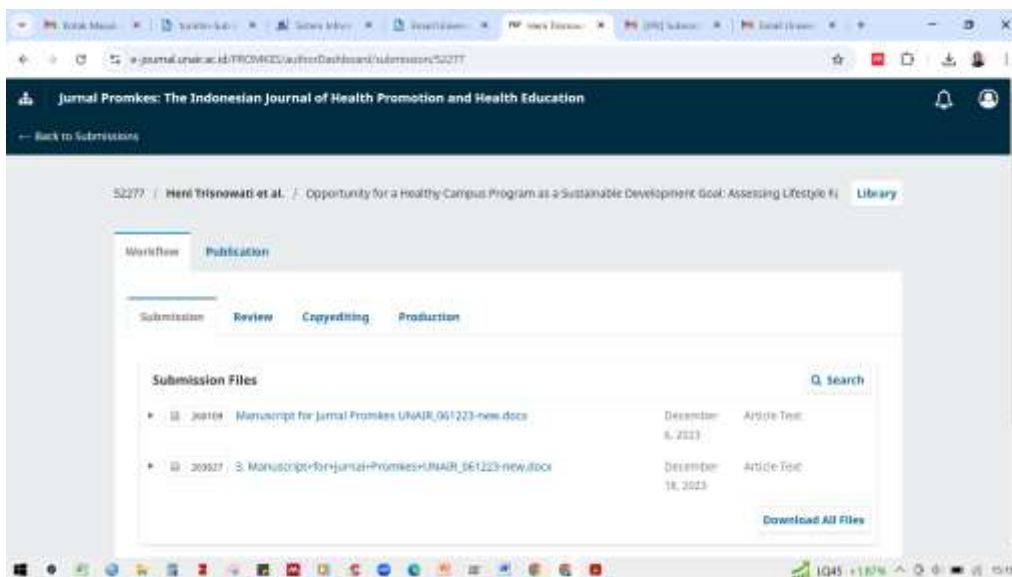
6 Desember 2023 pukul 09.38

Special Issue  
[Kutipan teks disembunyikan]

**Jurnal Promkes FKM UNAIR** <[jpromkes@fkm.unair.ac.id](mailto:jpromkes@fkm.unair.ac.id)>  
Kepada: Heni Trisnowati <[heni.trisnowati@pascakesmas.uad.ac.id](mailto:heni.trisnowati@pascakesmas.uad.ac.id)>

6 Desember 2023 pukul 09.38

Baik, terima kasih..  
[Kutipan teks disembunyikan]



# Artikel submit 1

## *The Relationship Between Demographic and Lifestyle Factors with Mental Health Status among Campus Community in Yogyakarta, Indonesia*

Heni Trisnowati<sup>1</sup>, Rika Yulianti<sup>1</sup>, Rizanna Rosemary<sup>2</sup>, Ariyanto Nugroho<sup>3</sup>

<sup>1</sup>. Postgraduate Program of Public Health, Faculty of Public Health, Universitas Ahmad Dahlan

<sup>2</sup>. Department of Communication Studies, Faculty of Social and Political Sciences, Universitas Syiah Kuala

<sup>3</sup>. Departement of Public Health, Faculty of Health Sciencies, Universitas Respati Yogyakarta

Email : [heni.trisnowati@pascakesmas.uad.ac.id](mailto:heni.trisnowati@pascakesmas.uad.ac.id)

### Abstract

**Background.** Globally, mental health has become a major issue in health development today. Campus communities cannot be separated from the problem of mental health. This study aims to describe the relationship between demographic and lifestyle factors with mental health status in campus communities.

**Method.** This study used a quantitative method with a cross-sectional design. Data collection was conducted through an online survey on 11-30 October 2021 at one of the universities in Yogyakarta. There were 503 respondents consisting of students, lecturers, and education staff. The instrument of mental health was the Self-Reporting Questionnaire-29 (SRQ-29).

**Result.** There were indications of needing referral due to anxiety and depression as much as 33.4%, and there were 5.28% of respondents requiring referral due to psychotic disorders, drugs, and PTSD. Demographic factors associated with mental health status were employment status, gender, and age. Meanwhile, lifestyle aspects that are associated with mental health status are physical activity duration and fruit and vegetable consumption per day. This was indicated by the respective p-values of 0.000 (employment status), 0.042 (gender), 0.027 (age), 0.003 (duration of physical activity), and 0.011 (consumption of fruits and vegetables per day). Furthermore, multivariate analysis showed that the duration of physical activity, as well as fruit and vegetable consumption, had a negative linear effect on the incidence of mental health disorders.

**Conclusion.** The higher the level of physical activity and the greater the intake of fruit and vegetables, the lower the possibility of mental health disorders. This finding provides baseline data for developing a healthy campus, particularly for mental health programs.

**Keywords:** mental health, demographic factors, lifestyle, campus community, SRQ 29

### Introduction

Globally, mental health has been a central issue of health development over the past three decades. Mental health has an intrinsic and instrumental value critical to individual well-being. Complex interactions between stresses and vulnerabilities at individual, community, and structural levels determine mental health (WHO, 2022). Approximately one billion people were experiencing mental health disorders, including 14% of adolescents worldwide, in 2019. Mental illness is the leading cause of disability, affecting one in every six years of life. In 2018, in Indonesia, more than 19 million people over the age of 15 suffered from mental and emotional illness, and more than 12 million people over the age of 15 suffered from depression (Rokom Kemenkes, 2021).

Lifestyle factors are crucial in positively influencing medical conditions, mental health, and the risk of disease, morbidity, and mortality. Measures such as having a healthy diet, participating in physical activity, stopping smoking, and avoiding the consumption of harmful substances have a major impact on mental health status. Achieving a healthy lifestyle includes creating a safe environment, ensuring adequate sleep patterns, managing stress, obtaining social support, and engaging in mentally beneficial activities (Zaman *et al.*, 2019). In addition, factors such as age (Idris & Hasri, 2023; Liu *et al.*, 2023), gender (França *et al.*, 2017; Kim *et al.*, 2022), and employment status (Idris & Hasri, 2023) can also affect mental health.

Mental health disorders can have a significant impact on a person's physical health. People suffering from severe mental illness are more susceptible to physical illnesses such as nutritional and metabolic diseases, cardiovascular diseases, viral diseases, respiratory diseases, musculoskeletal

diseases, sexual dysfunction, pregnancy complications and stomatognathic diseases, and may be associated with obesity (De Hert *et al.*, 2011). In addition, some rare mental health disorders, such as somatic symptom disorder, illness-induced anxiety disorder, and conversion disorder, may also affect cognitive function (Razzak *et al.*, 2022). Lifestyle significantly influences a person's mental health, and a healthy lifestyle can help maintain and improve mental health (Yoo & Kim, 2020). This study analyzes the relationship between demographic factors and lifestyle with mental health status among the campus community as baseline data to initiate healthy campus.

## Method

This study uses an explanatory quantitative method with a cross-sectional design (Swarjana, 2016). The research was conducted at one of the universities in Yogyakarta with the population being students, lecturers, and education staff. Data collection was collected through an online survey from 11-21 October 2021. Meanwhile, the research sample was students, lecturers, and employees willing to voluntarily complete questionnaires distributed directly via WhatsApp. Sampling was carried out consecutively and obtained 503 respondents, including 108 lecturers and education staff and 395 students.

Mental health measurement tools using Self-Reporting Questionnaire-29. This questionnaire consists of 29 questions that the respondents themselves fill in. Mental health status categories are divided into 2, namely need to be referred and do not need to be referred to mental health professionals. The analysis of the questionnaire is as follows: If in questions 1-20 there are at least 5 (five) Yes answers, the respondent should be referred to mental health professionals (psychiatrists, psychologists, general practitioners, and nurses who have been trained in mental health). Meanwhile, for questions 21-29 if there is only 1 (one) Yes answer, then the respondent should be referred to a mental health professional (Kemenkes RI, 2019). Descriptive data analysis using SPSS version 22. This research has received a certificate of ethical feasibility from Respati University Yogyakarta with no: 228.3/FIKES/PL/XI/2021. Analysis was carried out up to multivariate analysis. Univariate analysis uses frequency distribution analysis, bivariate analysis uses the Chi-Square test, and multivariate analysis uses the binomial logistic regression test, provided that the p-value in the bivariate analysis is not more than 0.25 (Sugiyono, 2019).

## Result

### Description of Demographic Factors and Lifestyle With Mental Health Status

The majority of respondents were university students (78.7%). The average respondent came from the faculties of health, social sciences and economics, and science and technology (99.4%). Female respondents accounted for 80.3%, with an average age range between 17 and 45 years, which is around 94.8%. Most respondents participated in physical activity 1-3 times per week (77.5%) with an activity duration of less than 1 hour (73.6%). Most respondents consumed fruits and vegetables 1-3 times per day (85.1%). A total of 94% of the respondents did not smoke, and among those who smoked, most smoked less than or equal to 5 cigarettes per day (97.6%) with a smoking duration of less than or equal to 5 years (98.2%). Furthermore, about 40% of respondents had anxiety and depression, about 35% had psychotic disorders, and 35.4% had PTSD. There were indications of needing referral due to psychological disorders, as much as 33.4%, and there were 5.28% of respondents requiring referral due to PTSD, drug, and psychotic disorders. A more detailed explanation is presented in Table 1.

Table 1. Description of Demographic Factors, Lifestyle, and Mental Health Status of Respondents (N=503)

Variables	n	%
<b>Demographic Factors</b>		
<b>Status</b>		
Students	396	78.7
Lectures and Staff	107	21.3
<b>Faculty</b>		
Non-Faculty (HRD, LPPM)	3	6
Faculty of Public Health, Faculty of Social Science and	500	99.4

Economics, Faculty of science & technology		
<b>Sex</b>		
Male	99	19.7
Female	404	80.3
<b>Age</b>		
17 - 45 years	477	94.8
46 - 65 years	26	5.2
<b>Lifestyle</b>		
<b>Total of Physical activity (Weeks)</b>		
≤ 3 times	390	77.5
>3 times	113	22.5
<b>Length of physical activity</b>		
≤1 hour	370	73.6
>1 hour	133	26.4
<b>Eat fruits and vegetables (day)</b>		
≤3 times	428	85.1
>3 times	75	14.9
<b>Smoking</b>		
Yes	30	6
No	473	94
<b>Smoking duration (Years)</b>		
>5 Years	8	1.8
≤5 Years	495	98.2
<b>Body mass index (BMI)</b>		
Abnormal	207	41.2
Normal	296	58.8
<b>Mental Health Status</b>		
<b>Anxiety &amp; depression</b>		
Yes	201	40
No	302	60
<b>Drug uses</b>		
Yes	4	0.8
No	499	99.2
<b>Psychotic disorder</b>		
Yes	181	36
No	322	64
<b>Post-Trauma Syndrome Disorder</b>		
Yes	178	35.4
No	325	64.6
<b>Mental Health Status :</b>		
<b>Anxiety &amp; depression (SRQ 1-20)</b>		
Need to refer	168	33.4
No need to refer	335	66.6
<b>Mental Health Status:</b>		
<b>Drug, psychotic, PTSD (SRQ 21-29)</b>		
Need to refer	26	5.2
No need to refer	477	94.8

### Relationship between Demographic and Lifestyle Factors with Mental Health Status

Demographic factors associated with mental health status (psychological disorders-SRQ 1-20) were employment status, gender, and age. Meanwhile, lifestyle aspects associated with mental health status (psychological disorders-SRQ 1-20) were duration of physical activity, and fruit and vegetable consumption per day. This results indicated by the respective p-values of 0.000 (employment status), 0.042 (gender), 0.027 (age), 0.003 (duration of physical activity), and 0.011 (consumption of fruits and vegetables per day). The results shown in Table II. Furthermore, the results of bivariate

tests between demographic factors, and lifestyle with mental health status for SRQ 21-29 (drugs, psychotic, PTSD) showed that only employment status was associated with mental health (p-value 0.000\*) (Table II). Correlation of Demographic and Lifestyle Factors with Mental Health Status (SRQ 1-20)

Table II. Correlation of Demographic and Lifestyle Factors with Mental Health Status (SRQ 1-20)

Variables	Mental Health Status No. 1-20			p-value	PR (95% CI)
	Need to refer	No need to refer	Total		
<b>Job Status</b>					
Students	155 (30.8%)	241 (47.9%)	396 (78.7%)	0.000*	3.22 (1.90-5.44)
Lecturers & Staff	13 (2.6%)	94 (18.7%)	107 (21.3%)		
<b>Faculty</b>					
Non Faculty	0 (0%)	3 (0.6%)	3 (0.6%)	0.554	1.50 (1.41-1.60)
Faculty of Public Health, Faculty of Social Science and Economics, faculty of science & technology	168 (33.4%)	332 (66%)	500 (99.4%)		
<b>Sex</b>					
Male	24 (4.8%)	75 (14.9%)	99 (19.7%)	0.042*	0.68 (0.46-0.98)
Female	144 (28.6%)	260 (51.7%)	404 (80.3%)		
<b>Age</b>					
17 - 45 years	165 (32.8%)	312 (62%)	477 (94.8%)	0.027*	2.99 (1.02-8.75)
46 - 65 years	3 (0.6%)	23 (4.6%)	26 (5.2%)		
<b>Total of Physical activity (Weeks)</b>					
≤ 3 times	135 (26.8%)	255 (50.7%)	390 (77.5%)	0.337	1.185 (0.863-1.629)
>3 times	33 (6.6%)	80 (15.9%)	113 (22.5%)		
<b>Length of physical activity</b>					
≤1 hour	138 (27.4%)	232 (46.1%)	370 (73.6%)	0.003*	1.65 (1.17-2.32)
>1 hour	30 (6%)	103 (20.5%)	133 (26.4%)		
<b>Eat fruits and vegetables (day)</b>					
≤3 times	153 (30.4%)	275 (54.7%)	428 (85.1%)	0.011*	1.78 (1.11-2.86)
>3 times	15 (3.0%)	60 (11.9%)	75 (14.9%)		
<b>Smoking</b>					
Yes	10 (2%)	20 (4%)	30 (6%)	1.000	1.00 (0.59-1.68)
No	158 (31.4%)	315 (62.6%)	473 (94%)		
<b>Smoking duration (Years)</b>					
>5 Years	2 (0.4%)	6 (1.2%)	8 (1.6%)	0.724	0.74 (0.22-2.49)
≤5 Years	166 (33%)	329 (65.4%)	495 (98.4%)		
<b>Body mass index (BMI)</b>					
Abnormal	67 (13.3%)	140 (27.8%)	207 (41.2%)	0.753	0.94 (0.73-1.22)
Normal	101 (20.1%)	195 (38.8%)	296 (58.8%)		



### Multivariate Analysis of Demographic and Lifestyle Factors with Mental Health Status

The results of multivariate analysis showed that employment status, gender, and age did not influence mental health in questions 1-20. On the other hand, the duration of physical activity and fruit and vegetable consumption significantly influenced mental health in questions 1-20. Variables tested multivariately must have a p-value  $\leq 0.25$ . Physical activity and fruit and vegetable consumption each have a  $\beta$  (beta) value of -0.757 and -0.977. These values indicate a negative linear relationship between physical activity levels and fruit and vegetable intake and the incidence of mental health disorders. From these results, it can be concluded that the higher the level of physical activity and the greater the intake of fruit and vegetables, the lower the possibility of mental health disorders. Thus, physical activity and consumption of fruits and vegetables are preventive or protective factors against mental health disorders. Respondents with physical activity more than 3 times a week have a chance of not experiencing mental health disorders by 0.46 compared to respondents with physical activity less than 3 times a week. Respondents with fruit and vegetable consumption more than 3 times a day have a chance of not experiencing mental health disorders by 0.48 compared to respondents with fruit and vegetable consumption less than 3 times a day. Meanwhile, the multivariate results also showed that the variables of employment status and smoking did not affect mental health status in questions 21-29. A more detailed explanation is shown in Table III below.

Table III. Multivariate Analysis of Demographic and Lifestyle Factors with Mental Health Status

Variables	$\beta$	P value	Exponen ( $\beta$ )/ Odds Ratio
<b>Mental Health Status (SRQ 1-20)</b>			
Job Status	-18.762	0.999	0.000
Sex	0.253	0.376	1.288
Age	-0.039	0.957	0.961
Duration of Physic Activity	-0.757	0.002*	0.469
Eating Fruits & Vegetables	-0.977	0.029*	0.488
<b>Mental Health Status (SRQ 21-29)</b>			
Job Status	18.721	0.999	0.000
Smoking	0.700	0.281	2.014

### Discussion

Mental health category No. 1-20 refers to anxiety and depression. In this category, around 40% of the total respondents experienced anxiety and depression, with 33.4% of them needing to be referred for further treatment. The results of this study are in line with the results of research at universities in Bangladesh which states that mental health disorders include "psychologically distressed" relating to the anxiety levels they reported. At the same time, depression (35%) and stress remained (20%) (Gamage & Herath, 2021). Furthermore, mental health in categories No. 21-29 refers to substance use, psychotic disorders, and PTSD. In this category, around 0.8% of respondents showed indications of drug use, 36% experienced psychotic disorders, and 35.4% experienced PTSD, of which 5.2% needed to be referred.

The most significant correlates of positive screening were older age and female gender (Odriozola-González *et al.*, 2020). Various studies have also shown that mental health disorders are more common among students than among workers (lecturers and educational staff) (Odriozola-González *et al.*, 2020; Aziz *et al.*, 2021). Different proportions are also seen in male and female students, possibly due to different responses and perspectives in dealing with problems and pressures from the environment and campus (Rosemary Rizanna, 2019)

This study's results align with Dale *et al.*'s findings, which show that lifestyle factors such as physical activity are associated with better mental health (Dale *et al.*, 2021). Another study in Switzerland also stated that loneliness is associated with poor physical and mental health, as well as unhealthy lifestyles (Richard *et al.*, 2017). Other findings from Perret *et al.*'s research suggest that lifestyle affects levels of resilience, affecting mental health (Perret *et al.*, 2020).

Other studies have also shown that exercise, in general, is associated with better mood and improved quality of life. The impact of physical health on mental health is well-documented, with many psychological effects, such as self-esteem, cognitive function, mood, depression, and quality of life,

remaining the focus of further research. These findings confirm the importance of exercise in improving outcomes for people with mental illness (Mahindru *et al.*, 2023). Lifestyle changes influence changes in mental health. Increased leisure time, activity, and decreased sleep duration are the lifestyle changes most closely associated with changes in mental health (Tanaka *et al.*, 2021).

The results showed that healthy lifestyle choices, such as increasing physical activity, not smoking, and maintaining a regular social rhythm, were associated with improved mental health over 1 year (Velten J *et al.*, 2018). Economic challenges, particularly a sense of despondency, contribute to the increase in mental health issues. Measures such as social distancing and other societal challenges further exacerbate depression within communities, which mostly led people to smoke as stress release during the health pandemic (Rosemary *et al.*, 2023)

Based on Dharmayani *et al.*'s research, fruit and vegetable intake is associated with mental health, including reducing the risk of depression (Dharmayani *et al.*, 2021). In healthy adults, vegetable consumption is also associated with psychological health (Tuck *et al.*, 2019). A Japanese study showed that higher fruit and vegetable consumption in middle age was associated with a lower risk of developing major depressive disorder later in life (Narita *et al.*, 2022). Higher fruit and vegetable consumption was also associated with lower levels of psychological distress (Richard *et al.*, 2015), and higher fish, fruit, and vegetable intake was also associated with lower incidence of mood disorders (Huang *et al.*, 2019).

There are many ways to overcome mental health problems, such as a) asking for help because we do not have to face everything alone, talking to people we trust and discussing what the problem is; b) breathing slowly and long. This simple action will reduce anxiety levels; c) eating a healthy and balanced menu because the body needs the energy to overcome stress; d) taking time to relax and do activities that you like; e) exercise regularly; f) doing tasks regularly, not piling up work (Kemenkes RI, 2019).

Expanding access to services, promoting promotive efforts, and increasing public awareness of mental health disorders should be a priority direction of national mental health policy. By not always relying on medical treatment and focusing more on family and community-based care, the welfare of people with mental disorders can certainly be improved (Ridlo & Zein, 2018).

Mental health prevention and control efforts that can be carried out include advocacy and socialization to regents/mayors and DPRD's to make policies that favor the improvement of community mental health; optimizing the role of district/provincial health offices in mental health efforts; increasing the coverage of mental health services in health services; building effective partnerships with non-governmental organizations, professional organizations, the private sector, by forming community mental health teams in provinces, districts/cities; encouraging family and community empowerment in mental health efforts; and developing mental health information systems through various surveys and research (Kemenkes RI, 2019).

### **Limitation**

This study has strengths in its clear methodology, using an explanatory approach and cross-sectional design that helps understand mental health in higher education. Using a tested instrument, the Self-Reporting Questionnaire-29 (SRQ-29) provided an accurate picture of the respondents' mental health. The adequate sample size of 503 respondents strengthened the validity of the results. Multivariate analyses provided deep insights into the factors that influence mental health. However, this study has some weaknesses. SRQ-29 as a mental health measurement tool has limitations in exploring specific diagnoses. In addition, the study was limited to how mental health looked at one point in time and could not capture changes over time. Some variables affecting mental health may not have been included in this study.

### **Conclusion**

Factors such as gender, age, physical activity, and fruit and vegetable consumption were associated with mental health psychological problems). Employment status is also associated with mental health in some aspects, namely in mental health No. 1-20 and 21-29. The variable length of physical activity affects mental health. It is necessary to implement prevention and treatment programs for mental health disorders, such as anxiety and depression, especially among university students. This finding provides baseline data for developing a healthy campus, particularly for mental health

programs. The program, e.g. increasing health literacy related to mental health, campaigns to increase physical activity, fruit and vegetable consumption, and avoiding smoking, are needed to help improve mental health status. In addition, advocate university leaders to create healthy campus regulations, provide mental health counselling, collaborate with the health office for further treatment, and ensure the program's sustainability.

#### Acknowledgments

We duly acknowledge the support of Dean all departments of the University and the cooperation of students who participated in this study.

#### Disclosure statement

No potential conflict of interest was reported by the authors.

#### References

- Aziz, Z.A., Ayu, D.A., Bancin, F.M., Syara, S.G., Manalu, W.B., S, R.A., et al., 2021. Gambaran Kesehatan Mental Mahasiswa di Masa Pandemi Covid-19. *J. Dunia Kesmas* 10: 130-135. doi:10.33024/jdk.v10i1.3256
- Dale, R., Budimir, S., Probst, T., Stippl, P., & Pieh, C., 2021. Mental health during the covid-19 lockdown over the christmas period in austria and the effects of sociodemographic and lifestyle factors. *Int. J. Environ. Res. Public Health* 18. doi:10.3390/ijerph18073679
- De Hert, M., Correll, C.U., Bobes, J., Cetkovich-Bakmas, M., Cohen, D.A.N., Asai, I., et al., 2011. Physical illness in patients with severe mental disorders. I. Prevalence, impact of medications and disparities in health care. *World Psychiatry* 10: 52-77. doi:10.1002/j.2051-5545.2011.tb00014.x
- Dharmayani, P.N.A., Juergens, M., Allman-Farinelli, M., & Mhrshahi, S., 2021. Association between fruit and vegetable consumption and depression symptoms in young people and adults aged 15-45: A systematic review of cohort studies. *Int. J. Environ. Res. Public Health* 18: 1-22. doi:10.3390/ijerph18020780
- França, M.H., Barreto, S.M., Pereira, F.G., de Andrade, L.H.S.G., de Paiva, M.C.A., & Viana, M.C., 2017. Mental disorders and employment status in the São Paulo Metropolitan Area, Brazil: Gender differences and use of health services. *Cad. Saude Publica* 33: 1-14. doi:10.1590/0102-311X00154116
- Gamage, G.P., & Herath, H.M.C.J., 2021. Mental health of undergraduate distance learners: a cross-sectional study. *Asian Assoc. Open Univ. J.* 16: 271-286. doi:10.1108/AAOUJ-08-2021-0097
- Huang, P., O'Keefe, M., Elia, C., Karamanos, A., Goff, L.M., Maynard, M., et al., 2019. Fruit and vegetable consumption and mental health across adolescence: Evidence from a diverse urban British cohort study. *Int. J. Behav. Nutr. Phys. Act.* 16. doi:10.1186/s12966-019-0780-y
- Idris, H., & Hasri, S.N., 2023. Factors Associated with the Symptom of Depression among Elderly in Indonesian Urban Areas. *J. Psikol.* 50: 45. doi:10.22146/jpsi.72406
- Kemendes RI, 2019. Pedoman Teknis Penyelenggaraan Kampus Sehat. Jakarta, Indonesia.
- KEMENKES RI, 2019. Situasi Kesehatan Jiwa Di Indonesia. *InfoDATIN*.
- Kim, Y.K., Yu, M., Moon, S.S., Maleku, A., Um, M.Y., & Tefera, G.M., 2022. Sociodemographic characteristics, preventive behaviors, and the mental health status of social work students in the US during the COVID-19 pandemic. *Soc. Work Ment. Health* 20: 578-603. doi:10.1080/15332985.2022.2047870
- Liu, Y., Xu, Y., Yang, X., Miao, G., Wu, Y., & Yang, S., 2023. The prevalence of anxiety and its key influencing factors among the elderly in China. *Front. Psychiatry* 14: 1-11. doi:10.3389/fpsy.2023.1038049
- Mahindru, A., Patil, P., & Agrawal, V., 2023. Role of Physical Activity on Mental Health and Well-Being: A Review. *Cureus* 15: 1-7. doi:10.7759/cureus.33475
- Narita, Z., Nozaki, S., Shikimoto, R., Hori, H., Kim, Y., Mimura, M., et al., 2022. Association between vegetable, fruit, and flavonoid-rich fruit consumption in midlife and major depressive disorder in later life: the JPHC Saku Mental Health Study. *Transl. Psychiatry* 12: 1-6. doi:10.1038/s41398-022-02166-8
- Odriozola-González, P., Planchuelo-Gómez, Á., Irurtia, M.J., & de Luis-García, R., 2020.

- Psychological effects of the COVID-19 outbreak and lockdown among students and workers of a Spanish university. *Psychiatry Res.* 290: 113108. doi:10.1016/j.psychres.2020.113108
- Perret, J.L., Best, C.O., Coe, J.B., Greer, A.L., Khosa, D.K., & Jones-Bitton, A., 2020. Association of demographic, career, and lifestyle factors with resilience and association of resilience with mental health outcomes in veterinarians in Canada. *J. Am. Vet. Med. Assoc.* 257: 1057-1068. doi:10.2460/JAVMA.2020.257.10.1057
- Razzak, A.N., Orlando, N.A., Angelette, A., Kumar, V., Anderson, D.J., Hasoon, J., et al., 2022. Rare Mental Health Disorders Affecting Urologic Care: A Comprehensive Review. *Heal. Psychol. Res.* 10: 1-14. doi:10.52965/001c.38674
- Richard, A., Rohrmann, S., Vandeleur, C.L., Mohler-Kuo, M., & Eichholzer, M., 2015. Associations between fruit and vegetable consumption and psychological distress: Results from a population-based study. *BMC Psychiatry* 15: 1-8. doi:10.1186/s12888-015-0597-4
- Richard, A., Rohrmann, S., Vandeleur, C.L., Schmid, M., Barth, J., & Eichholzer, M., 2017. Loneliness is adversely associated with physical and mental health and lifestyle factors: Results from a Swiss national survey. *PLoS One* 12: 1-18. doi:10.1371/journal.pone.0181442
- Ridlo, I.A., & Zein, R.A., 2018. Arah Kebijakan Kesehatan Mental: Tren Global dan Nasional Serta Tantangan Aktual. *Bul. Penelit. Kesehat.* 46: 45-52. doi:10.22435/bpk.v46i1.56
- Rokom Kemenkes, 2021. Kemenkes Beberkan Masalah Permasalahan Kesehatan Jiwa di Indonesia [WWW Document]. *Sehat Negeriku Sehatlah Bangsa*, Kementerian. *Kesehat. RI*. URL <https://sehatnegeriku.kemkes.go.id/baca/rilis-media/20211007/1338675/kemenkes-beberkan-masalah-permasalahan-kesehatan-jiwa-di-indonesia/> (accessed 9.19.23).
- Rosemary, R., Ciptaningtyas, R., Usman, S., Ilmu Sosial dan Politik, F., Syiah Kuala, U., Teuku Nyak Arief, J., et al., 2023. Food and cigarettes expenses during COVID-19 pandemic on diet quality in Jakarta and surroundings. *AcTion Aceh Nutr. J.* 8: 278-287. doi:10.30867/ACTION.V8I2.927
- Rosemary, R., Pertiwi, P., & Denna, I., 2019. #StayAlive - Inside Indonesia: The peoples and cultures of Indonesia [WWW Document]. *Insid. Indones.* URL <https://www.insideindonesia.org/editions/edition-134-oct-dec-2018/stayalive-2> (accessed 11.13.23).
- Sugiyono, 2019. *Metode Penelitian Kuantitatif*. Penerbit Alfabeta, Bandung.
- Swarjana, I.K., 2016. *Metodologi Penelitian Kesehatan* (Ed. Revisi). ANDI, Yogyakarta.
- Tanaka, K., Tahara, M., Mashizume, Y., & Takahashi, K., 2021. Effects of lifestyle changes on the mental health of healthcare workers with different sense of coherence levels in the era of COVID-19 pandemic. *Int. J. Environ. Res. Public Health* 18: 1-11. doi:10.3390/ijerph18062801
- Tuck, N.J., Farrow, C., & Thomas, J.M., 2019. Assessing the effects of vegetable consumption on the psychological health of healthy adults: a systematic review of prospective research. *Am. J. Clin. Nutr.* 110: 196-211. doi:10.1093/ajcn/nqz080
- Velten J, Bieda A, Scholten S, Wannemüller A, & Margraf J, 2018. Lifestyle choices and mental health: A longitudinal survey with German and Chinese students. *BMC Public Health* [revista en Internet] 2018 [acceso 2 de julio de 2021]; 18(1): 1-15. 1-15.
- WHO, 2022. Mental health [WWW Document]. *World Heal. Organ.* URL <https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response> (accessed 9.19.23).
- Yoo, H., & Kim, N., 2020. Factors associated with lifestyle habits and mental health problems in Korean adolescents: The Korea national health and nutrition examination survey 2017-2018. *Int. J. Environ. Res. Public Health* 17: 1-15. doi:10.3390/ijerph17249418
- Zaman, R., Hankir, A., & Jemni, M., 2019. Lifestyle factors and mental health. *Psychiatr. Danub.* 31: 217-220.

## Tahap 3. Hasil Reviewer : 20 Desember 2023

UNIVERSITAS  
AHMAD DAHLAN

Henri Trisnowati <heni.trisnowati@pascakesmas.uad.ac.id>

### ARTICLE SUBMISSION

11 pesan

Jurnal Promkes <jurnal.promkes@gmail.com>

20 Desember 2023 pukul 14.54

Kepada: Henri Trisnowati <heni.trisnowati@pascakesmas.uad.ac.id>

Dear Author,

Berikut kami lampirkan hasil review oleh reviewer atas naskah yang Anda kirimkan

Silakan melakukan perbaikan

Proses revisi kami tunggu hingga Jumat, 29 Desember 2023

Terima kasih

--

Best Regards,

EDITORIAL TEAM JURNAL PROMKES

Faculty of Public Health, Universitas Airlangga

Campus C Universitas Airlangga

Jl. Mulyorejo Campus C UNAIR, Surabaya 60115, Indonesia.

E-mail: [jurnal.promkes@gmail.com](mailto:jurnal.promkes@gmail.com) / [jpromkes@fkm.unair.ac.id](mailto:jpromkes@fkm.unair.ac.id)

Phone: +62813-9351-4414



Virus-free. [www.avast.com](http://www.avast.com)



Review\_3. Manuscript+for+Jurnal+Promkes+UNAIR\_061223-new.docx

77K

**The Relationship Between Demographic and Lifestyle Factors with Mental Health Status among Campus Community in Yogyakarta, Indonesia**

Comment [rd1]: title need to revisi so it more interest you can mention SDGS

#### Abstract

**Background.** Globally, mental health has become a major issue in health development today. Campus communities cannot be separated from the problem of mental health. This study aims to describe the relationship between demographic and lifestyle factors with mental health status in campus communities.

**Method.** This study used a quantitative method with a cross-sectional design. Data collection was conducted through an online survey on 11-30 October 2021 at one of the universities in Yogyakarta. There were 503 respondents consisting of students, lecturers, and education staff. The instrument of mental health was the Self-Reporting Questionnaire-29 (SRQ-29).

**Result.** There were indications of needing referral due to anxiety and depression as much as 33.4%, and there were 5.28% of respondents requiring referral due to psychotic disorders, drugs, and PTSD. Demographic factors associated with mental health status were employment status, gender, and age. Meanwhile, lifestyle aspects that are associated with mental health status are physical activity duration and fruit and vegetable consumption per day. This was indicated by the respective p-values of 0.000 (employment status), 0.042 (gender), 0.027 (age), 0.003 (duration of physical activity), and 0.011 (consumption of fruits and vegetables per day). Furthermore, multivariate analysis showed that the duration of physical activity, as well as fruit and vegetable

consumption, had a negative linear effect on the incidence of mental health disorders.

**Conclusion.** The higher the level of physical activity and the greater the intake of fruit and vegetables, the lower the possibility of mental health disorders. *This finding provides baseline data for developing a healthy campus, particularly for mental health programs.*

**Keywords:** mental health, demographic factors, lifestyle, campus community, SRQ 29

## Introduction

Globally, mental health has been a central issue of health development over the past three decades. Mental health has an intrinsic and instrumental value critical to individual well-being. Complex interactions between stresses and vulnerabilities at individual, community, and structural levels determine mental health (WHO, 2022). Approximately one billion people were experiencing mental health disorders, including 14% of adolescents worldwide, in 2019. Mental illness is the leading cause of disability, affecting one in every six years of life. In 2018, in Indonesia, more than 19 million people over the age of 15 suffered from mental and emotional illness, and more than 12 million people over the age of 15 suffered from depression (Rokom Kemenkes, 2021).

Lifestyle factors are crucial in positively influencing medical conditions, mental health, and the risk of disease, morbidity, and mortality. Measures such as having a healthy diet, participating in physical activity, stopping smoking, and avoiding the consumption of harmful substances have a major impact on mental health status. Achieving a healthy lifestyle includes creating a safe environment, ensuring adequate sleep patterns, managing stress, obtaining social support, and engaging in mentally beneficial activities (Zaman *et al.*, 2019). In addition, factors such as age (Idris & Hasri, 2023; Liu *et al.*, 2023), gender (França *et al.*, 2017; Kim *et al.*, 2022), and employment status (Idris & Hasri, 2023) can also affect mental health.

Mental health disorders can have a significant impact on a person's physical health. People suffering from severe mental illness are more susceptible to physical illnesses such as nutritional and metabolic diseases, cardiovascular diseases, viral diseases, respiratory diseases, musculoskeletal diseases, sexual dysfunction, pregnancy complications and stomatognathic diseases, and may be associated with obesity (De Hert *et al.*, 2011). In addition, some rare mental health disorders, such as somatic symptom disorder, illness-induced anxiety disorder, and conversion disorder, may also affect cognitive function (Razzak *et al.*, 2022). Lifestyle significantly influences a person's mental health, and a healthy lifestyle can help maintain and improve mental health (Yoo & Kim, 2020). This study analysis the relationship between demographic factors and lifestyle with mental health status among the campus community as baseline data to initiate healthy campus.

## Method

This study uses an explanatory quantitative method with a cross-sectional design (Swarjana, 2016). The research was conducted at one of the universities in Yogyakarta with the population being students, lecturers, and education staff. Data collection was collected through an online survey from 11-21 October 2021. Meanwhile, the research sample was students, lecturers, and employees willing to voluntarily complete questionnaires distributed directly via WhatsApp. Sampling was carried out consecutively and obtained 503 respondents, including 108 lecturers and education staff and 395 students.

Mental health measurement tools using Self-Reporting Questionnaire-29. This questionnaire consists of 29 questions that the respondents themselves fill in. Mental health status categories are divided into 2, namely need to be referred and do not need to be referred to mental health professionals. The analysis of the questionnaire is as follows: If in questions 1-20 there are at least 5 (five) Yes answers, the respondent should be referred to mental health professionals (psychiatrists, psychologists, general practitioners, and nurses who have been trained in mental health). Meanwhile, for questions 21-29 if there is only 1 (one) Yes answer, then the respondent should be referred to a mental health professional (Kemenkes RI, 2019). Descriptive data analysis using SPSS version 22. This research has received a certificate of ethical feasibility from Respati University Yogyakarta with no: 228.3/FIKES/PL/XI/2021. Analysis was carried out up to multivariate analysis. Univariate analysis uses frequency distribution analysis, bivariate analysis uses the Chi-Square test, and multivariate analysis uses the binominal logistic regression test, provided that the p-value in the bivariate analysis is not more than 0.25 (Sugiyono, 2019).

**Comment [rd2]:** introduction is lack of information. what correlation to SDGS problem, what relevancy between topic and SDGS ?

how about the health promotion? what is the correlation to healthy campus, mental health and health promotion

what the major problem in community particularly life in campus, show the data in Yogyakarta, give explanation about the condition or the problems Yogyakarta

**Comment [rd3]:** how many universities as samples? show how selected the respondents?

## Result

### Description of Demographic Factors and Lifestyle With Mental Health Status

The majority of respondents were university students (78.7%). The average respondent came from the faculties of health, social sciences and economics, and science and technology (99.4%). Female respondents accounted for 80.3%, with an average age range between 17 and 45 years, which is around 94.8%. Most respondents participated in physical activity 1-3 times per week (77.5%) with an activity duration of less than 1 hour (73.6%). Most respondents consumed fruits and vegetables 1-3 times per day (85.1%). A total of 94% of the respondents did not smoke, and among those who smoked, most smoked less than or equal to 5 cigarettes per day (97.6%) with a smoking duration of less than or equal to 5 years (98.2%). Furthermore, about 40% of respondents had anxiety and depression, about 35% had psychotic disorders, and 35.4% had PTSD. There were indications of needing referral due to psychological disorders, as much as 33.4%, and there were 5.28% of respondents requiring referral due to PTSD, drug, and psychotic disorders. A more detailed explanation is presented in Table 1.

Table I. Description of Demographic Factors, Lifestyle, and Mental Health Status of Respondents (N=503)

Variables	n	%
<b>Demographic Factors</b>		
Status		
Students	396	78.7
Lectures and Staff	107	21.3
Faculty		
Non-Faculty (HRD, LPPM)	3	6
Faculty of Public Health, Faculty of Social Science and Economics, Faculty of science & technology	500	99.4
Sex		
Male	99	19.7
Female	404	80.3
Age		
17 - 45 years	477	94.8
46 - 65 years	26	5.2
Lifestyle		
Total of Physical activity (Weeks)		
≤ 3 times	390	77.5
>3 times	113	22.5
Length of physical activity		
≤1 hour	370	73.6
>1 hour	133	26.4
Eat fruits and vegetables (day)		
≤3 times	428	85.1
>3 times	75	14.9
Smoking		
Yes	30	6
No	473	94
Smoking duration (Years)		
>5 Years	8	1.8
≤5 Years	495	98.2
Body mass index (BMI)		
Abnormal	207	41.2
Normal	296	58.8
<b>Mental Health Status</b>		
Anxiety & depression		
Yes	201	40

No	302	60
<b>Drug uses</b>		
Yes	4	0.8
No	499	99.2
<b>Psychotic disorder</b>		
Yes	181	36
No	322	64
<b>Post-Trauma Syndrome Disorder</b>		
Yes	178	35.4
No	325	64.6
<b>Mental Health Status :</b>		
<b>Anxiety &amp; depression (SRQ 1-20)</b>		
Need to refer	168	33.4
No need to refer	335	66.6
<b>Mental Health Status:</b>		
<b>Drug, psychotic, PTSD (SRQ 21-29)</b>		
Need to refer	26	5.2
No need to refer	477	94.8

### Relationship between Demographic and Lifestyle Factors with Mental Health Status

Demographic factors associated with mental health status (psychological disorders-SRQ 1-20) were employment status, gender, and age. Meanwhile, lifestyle aspects associated with mental health status (psychological disorders-SRQ 1-20) were duration of physical activity, and fruit and vegetable consumption per day. This results indicated by the respective p-values of 0.000 (employment status), 0.042 (gender), 0.027 (age), 0.003 (duration of physical activity), and 0.011 (consumption of fruits and vegetables per day). The results shown in Table II. Furthermore, the results of bivariate tests between demographic factors, and lifestyle with mental health status for SRQ 21-29 (drugs, psychotic, PTSD) showed that only employment status was associated with mental health (p-value 0.000). Correlation of Demographic and Lifestyle Factors with Mental Health Status (SRQ 1-20).

Table II. Correlation of Demographic and Lifestyle Factors with Mental Health Status (SRQ 1-20)

Variables	Mental Health Status No. 1-20			p-value	PR (95% CI)
	Need to refer	No need to refer	Total		
<b>Job Status</b>					
Students	155 (30.8%)	241 (47.9%)	396 (78.7%)	0.000*	3.22 (1.90-5.44)
Lecturers & Staff	13 (2.6%)	94 (18.7%)	107 (21.3%)		
<b>Faculty</b>					
Non Faculty	0 (0%)	3 (0.6%)	3 (0.6%)		
Faculty of Public Health, Faculty of Social Science and Economics, faculty of science & technology	168 (33.4%)	332 (66%)	500 (99.4%)	0.554	1.50 (1.41-1.60)
<b>Sex</b>					
Male	24 (4.8%)	75 (14.9%)	99 (19.7%)	0.042*	0.68 (0.46-0.98)
Female	144 (28.6%)	260 (51.7%)	404 (80.3%)		
<b>Age</b>					
17 - 45 years	165 (32.8%)	312 (62%)	477 (94.8%)	0.027*	2.99 (1.02-8.75)
46 - 65 years	3 (0.6%)	23 (4.6%)	26 (5.2%)		
<b>Total of Physical activity (Weeks)</b>					
≤ 3 times	135 (26.8%)	255 (50.7%)	390 (77.5%)	0.337	1.185 (0.863-1.629)
>3 times	33 (6.6%)	80 (15.9%)	113 (22.5%)		
<b>Length of physical activity</b>					
≤1 hour	138 (27.4%)	232 (46.1%)	370 (73.6%)	0.003*	1.65 (1.17-2.32)
>1 hour	30 (6%)	103 (20.5%)	133 (26.4%)		
<b>Eat fruits and vegetables (day)</b>					
≤3 times	153 (30.4%)	275 (54.7%)	428 (85.1%)	0.011*	1.78 (1.11-2.86)
>3 times	15 (3.0%)	60 (11.9%)	75 (14.9%)		
<b>Smoking</b>					
Yes	10 (2%)	20 (4%)	30 (6%)	1.000	1.00 (0.59-1.68)
No	158 (31.4%)	315 (62.6%)	473 (94%)		



Smoking duration (Years)					
>5 Years	2 (0.4%)	6 (1.2%)	8 (1.6%)	0.724	0.74 (0.22-2.49)
≤5 Years	166 (33%)	329 (65.4%)	495 (98.4%)		
Body mass index (BMI)					
Abnormal	67 (13.3%)	140 (27.8%)	207 (41.2%)	0.753	0.94 (0.73-1.22)
Normal	101 (20.1%)	195 (38.8%)	296 (58.8%)		

### Multivariate Analysis of Demographic and Lifestyle Factors with Mental Health Status

The results of multivariate analysis showed that employment status, gender, and age did not influence mental health in questions 1-20. On the other hand, the duration of physical activity and fruit and vegetable consumption significantly influenced mental health in questions 1-20. Variables tested multivariately must have a p-value  $\leq 0.25$ . Physical activity and fruit and vegetable consumption each have a  $\beta$  (beta) value of -0.757 and -0.977. These values indicate a negative linear relationship between physical activity levels and fruit and vegetable intake and the incidence of mental health disorders. From these results, it can be concluded that the higher the level of physical activity and the greater the intake of fruit and vegetables, the lower the possibility of mental health disorders. Thus, physical activity and consumption of fruits and vegetables are preventive or protective factors against mental health disorders. Respondents with physical activity more than 3 times a week have a chance of not experiencing mental health disorders by 0.46 compared to respondents with physical activity less than 3 times a week. Respondents with fruit and vegetable consumption more than 3 times a day have a chance of not experiencing mental health disorders by 0.48 compared to respondents with fruit and vegetable consumption less than 3 times a day. Meanwhile, the multivariate results also showed that the variables of employment status and smoking did not affect mental health status in questions 21-29. A more detailed explanation is shown in Table III below.

Table III. Multivariate Analysis of Demographic and Lifestyle Factors with Mental Health Status

Variables	$\beta$	P value	Exponen (B)/ Odds Ratio
<b>Mental Health Status (SRQ 1-20)</b>			
Job Status	-18.762	0.999	0.000
Sex	0.253	0.376	1.288
Age	-0.039	0.957	0.961
Duration of Physic Activity	-0.757	0.002*	0.469
Eating Fruits & Vegetables	-0.977	0.029*	0.488
<b>Mental Health Status (SRQ 21-29)</b>			
Job Status	18.721	0.999	0.000
Smoking	0.700	0.281	2.014

### Discussion

Mental health category No. 1-20 refers to anxiety and depression. In this category, around 40% of the total respondents experienced anxiety and depression, with 33.4% of them needing to be referred for further treatment. The results of this study are in line with the results of research at universities in Bangladesh which states that mental health disorders include "psychologically distressed" relating to the anxiety levels they reported. At the same time, depression (35%) and stress remained (20%) (Gamage & Herath, 2021). Furthermore, mental health in categories No. 21-29 refers to substance use, psychotic disorders, and PTSD. In this category, around 0.8% of respondents showed indications of drug use, 36% experienced psychotic disorders, and 35.4% experienced PTSD, of which 5.2% needed to be referred.

The most significant correlates of positive screening were older age and female gender (Odrizola-González *et al.*, 2020). Various studies have also shown that mental health disorders are more common among students than among workers (lecturers and educational staff) (Odrizola-González *et al.*, 2020; Aziz *et al.*, 2021). Different proportions are also seen in male and female students, possibly due to different responses and perspectives in dealing with problems and pressures from the environment and campus (Rosemary Rizanna, 2019)

This study's results align with Dale *et al.*'s findings, which show that lifestyle factors such as physical activity are associated with better mental health (Dale *et al.*, 2021). Another study in Switzerland

also stated that loneliness is associated with poor physical and mental health, as well as unhealthy lifestyles (Richard *et al.*, 2017). Other findings from Perret *et al.*'s research suggest that lifestyle affects levels of resilience, affecting mental health (Perret *et al.*, 2020).

Other studies have also shown that exercise, in general, is associated with better mood and improved quality of life. The impact of physical health on mental health is well-documented, with many psychological effects, such as self-esteem, cognitive function, mood, depression, and quality of life, remaining the focus of further research. These findings confirm the importance of exercise in improving outcomes for people with mental illness (Mahindru *et al.*, 2023). Lifestyle changes influence changes in mental health. Increased leisure time, activity, and decreased sleep duration are the lifestyle changes most closely associated with changes in mental health (Tanaka *et al.*, 2021).

The results showed that healthy lifestyle choices, such as increasing physical activity, not smoking, and maintaining a regular social rhythm, were associated with improved mental health over 1 year (Velten J *et al.*, 2018). Economic challenges, particularly a sense of despondency, contribute to the increase in mental health issues. Measures such as social distancing and other societal challenges further exacerbate depression within communities, which mostly led people to smoke as stress release during the health pandemic (Rosemary *et al.*, 2023)

Based on Dharmayani *et al.*'s research, fruit and vegetable intake is associated with mental health, including reducing the risk of depression (Dharmayani *et al.*, 2021). In healthy adults, vegetable consumption is also associated with psychological health (Tuck *et al.*, 2019). A Japanese study showed that higher fruit and vegetable consumption in middle age was associated with a lower risk of developing major depressive disorder later in life (Narita *et al.*, 2022). Higher fruit and vegetable consumption was also associated with lower levels of psychological distress (Richard *et al.*, 2015), and higher fish, fruit, and vegetable intake was also associated with lower incidence of mood disorders (Huang *et al.*, 2019).

There are many ways to overcome mental health problems, such as a) asking for help because we do not have to face everything alone, talking to people we trust and discussing what the problem is; b) breathing slowly and long. This simple action will reduce anxiety levels; c) eating a healthy and balanced menu because the body needs the energy to overcome stress; d) taking time to relax and do activities that you like; e) exercise regularly; f) doing tasks regularly, not piling up work (Kemenkes RI, 2019).

Expanding access to services, promoting promotive efforts, and increasing public awareness of mental health disorders should be a priority direction of national mental health policy. By not always relying on medical treatment and focusing more on family and community-based care, the welfare of people with mental disorders can certainly be improved (Ridlo & Zein, 2018).

Mental health prevention and control efforts that can be carried out include advocacy and socialization to regents/mayors and DPRD's to make policies that favor the improvement of community mental health; optimizing the role of district/provincial health offices in mental health efforts; increasing the coverage of mental health services in health services; building effective partnerships with non-governmental organizations, professional organizations, the private sector, by forming community mental health teams in provinces, districts/cities; encouraging family and community empowerment in mental health efforts; and developing mental health information systems through various surveys and research (Kemenkes RI, 2019).

## **Conclusion**

Factors such as gender, age, physical activity, and fruit and vegetable consumption were associated with mental health psychological problems). Employment status is also associated with mental health in some aspects, namely in mental health No. 1-20 and 21-29. The variable length of physical activity affects mental health. It is necessary to implement prevention and treatment programs for mental health disorders, such as anxiety and depression, especially among university students. This finding provides baseline data for developing a healthy campus, particularly for mental health programs. The program, e.g. increasing health literacy related to mental health, campaigns to increase physical activity, fruit and vegetable consumption, and avoiding smoking, are needed to help improve mental health status. In addition, advocate university leaders to create healthy campus regulations, provide mental health counselling, collaborate with the health office for further treatment, and ensure the program's sustainability.

## References

- Aziz, Z.A., Ayu, D.A., Bancin, F.M., Syara, S.G., Manalu, W.B., S, R.A., et al., 2021. Gambaran Kesehatan Mental Mahasiswa di Masa Pandemi Covid-19. *J. Dunia Kesmas* 10: 130-135. doi:10.33024/jdk.v10i1.3256
- Dale, R., Budimir, S., Probst, T., Stippl, P., & Pieh, C., 2021. Mental health during the covid-19 lockdown over the christmas period in austria and the effects of sociodemographic and lifestyle factors. *Int. J. Environ. Res. Public Health* 18. doi:10.3390/ijerph18073679
- De Hert, M., Correll, C.U., Bobes, J., Cetkovich-Bakmas, M., Cohen, D.A.N., Asai, I., et al., 2011. Physical illness in patients with severe mental disorders. I. Prevalence, impact of medications and disparities in health care. *World Psychiatry* 10: 52-77. doi:10.1002/j.2051-5545.2011.tb00014.x
- Dharmayani, P.N.A., Juergens, M., Allman-Farinelli, M., & Mihrshahi, S., 2021. Association between fruit and vegetable consumption and depression symptoms in young people and adults aged 15-45: A systematic review of cohort studies. *Int. J. Environ. Res. Public Health* 18: 1-22. doi:10.3390/ijerph18020780
- França, M.H., Barreto, S.M., Pereira, F.G., de Andrade, L.H.S.G., de Paiva, M.C.A., & Viana, M.C., 2017. Mental disorders and employment status in the São Paulo Metropolitan Area, Brazil: Gender differences and use of health services. *Cad. Saude Publica* 33: 1-14. doi:10.1590/0102-311X00154116
- Gamage, G.P., & Herath, H.M.C.J., 2021. Mental health of undergraduate distance learners: a cross-sectional study. *Asian Assoc. Open Univ. J.* 16: 271-286. doi:10.1108/AAOUJ-08-2021-0097
- Huang, P., O'Keefe, M., Elia, C., Karamanos, A., Goff, L.M., Maynard, M., et al., 2019. Fruit and vegetable consumption and mental health across adolescence: Evidence from a diverse urban British cohort study. *Int. J. Behav. Nutr. Phys. Act.* 16. doi:10.1186/s12966-019-0780-y
- Idris, H., & Hasri, S.N., 2023. Factors Associated with the Symptom of Depression among Elderly in Indonesian Urban Areas. *J. Psikol.* 50: 45. doi:10.22146/jpsi.72406
- Kemendes RI, 2019. Pedoman Teknis Penyelenggaraan Kampus Sehat. Jakarta, Indonesia.
- KEMENKES RI, 2019. Situasi Kesehatan Jiwa Di Indonesia. *InfoDATIN*.
- Kim, Y.K., Yu, M., Moon, S.S., Maleku, A., Um, M.Y., & Tefera, G.M., 2022. Sociodemographic characteristics, preventive behaviors, and the mental health status of social work students in the US during the COVID-19 pandemic. *Soc. Work Ment. Health* 20: 578-603. doi:10.1080/15332985.2022.2047870
- Liu, Y., Xu, Y., Yang, X., Miao, G., Wu, Y., & Yang, S., 2023. The prevalence of anxiety and its key influencing factors among the elderly in China. *Front. Psychiatry* 14: 1-11. doi:10.3389/fpsy.2023.1038049
- Mahindru, A., Patil, P., & Agrawal, V., 2023. Role of Physical Activity on Mental Health and Well-Being: A Review. *Cureus* 15: 1-7. doi:10.7759/cureus.33475
- Narita, Z., Nozaki, S., Shikimoto, R., Hori, H., Kim, Y., Mimura, M., et al., 2022. Association between vegetable, fruit, and flavonoid-rich fruit consumption in midlife and major depressive disorder in later life: the JPHC Saku Mental Health Study. *Transl. Psychiatry* 12: 1-6. doi:10.1038/s41398-022-02166-8
- Odrizola-González, P., Planchuelo-Gómez, Á., Irurtia, M.J., & de Luis-García, R., 2020. Psychological effects of the COVID-19 outbreak and lockdown among students and workers of a Spanish university. *Psychiatry Res.* 290: 113108. doi:10.1016/j.psychres.2020.113108
- Perret, J.L., Best, C.O., Coe, J.B., Greer, A.L., Khosa, D.K., & Jones-Bitton, A., 2020. Association of demographic, career, and lifestyle factors with resilience and association of resilience with mental health outcomes in veterinarians in Canada. *J. Am. Vet. Med. Assoc.* 257: 1057-1068. doi:10.2460/JAVMA.2020.257.10.1057
- Razzak, A.N., Orlando, N.A., Angelette, A., Kumar, V., Anderson, D.J., Hasoon, J., et al., 2022. Rare Mental Health Disorders Affecting Urologic Care: A Comprehensive Review. *Heal. Psychol. Res.* 10: 1-14. doi:10.52965/001c.38674
- Richard, A., Rohrmann, S., Vandeleur, C.L., Mohler-Kuo, M., & Eichholzer, M., 2015. Associations between fruit and vegetable consumption and psychological distress: Results from a population-based study. *BMC Psychiatry* 15: 1-8. doi:10.1186/s12888-015-0597-4
- Richard, A., Rohrmann, S., Vandeleur, C.L., Schmid, M., Barth, J., & Eichholzer, M., 2017.

- Loneliness is adversely associated with physical and mental health and lifestyle factors: Results from a Swiss national survey. *PLoS One* 12: 1-18. doi:10.1371/journal.pone.0181442
- Ridlo, I.A., & Zein, R.A., 2018. Arah Kebijakan Kesehatan Mental: Tren Global dan Nasional Serta Tantangan Aktual. *Bul. Penelit. Kesehat.* 46: 45-52. doi:10.22435/bpk.v46i1.56
- Rokom Kemenkes, 2021. Kemenkes Beberkan Masalah Permasalahan Kesehatan Jiwa di Indonesia [WWW Document]. *Sehat Negeriku Sehatlah Bangsa*, Kementerian. *Kesehat. RI*. URL <https://sehatnegeriku.kemkes.go.id/baca/rilis-media/20211007/1338675/kemenkes-beberkan-masalah-permasalahan-kesehatan-jiwa-di-indonesia/> (accessed 9.19.23).
- Rosemary, R., Ciptaningtyas, R., Usman, S., Ilmu Sosial dan Politik, F., Syiah Kuala, U., Teuku Nyak Arief, J., et al., 2023. Food and cigarettes expenses during COVID-19 pandemic on diet quality in Jakarta and surroundings. *AcTion Aceh Nutr. J.* 8: 278-287. doi:10.30867/ACTION.V8I2.927
- Rosemary, R., Pertiwi, P., & Denna, I., 2019. #StayAlive - Inside Indonesia: The peoples and cultures of Indonesia [WWW Document]. *Insid. Indones.* URL <https://www.insideindonesia.org/editions/edition-134-oct-dec-2018/stayalive-2> (accessed 11.13.23).
- Sugiyono, 2019. *Metode Penelitian Kuantitatif*. Penerbit Alfabeta, Bandung.
- Swarjana, I.K., 2016. *Metodologi Penelitian Kesehatan (Ed. Revisi)*. ANDI, Yogyakarta.
- Tanaka, K., Tahara, M., Mashizume, Y., & Takahashi, K., 2021. Effects of lifestyle changes on the mental health of healthcare workers with different sense of coherence levels in the era of COVID-19 pandemic. *Int. J. Environ. Res. Public Health* 18: 1-11. doi:10.3390/ijerph18062801
- Tuck, N.J., Farrow, C., & Thomas, J.M., 2019. Assessing the effects of vegetable consumption on the psychological health of healthy adults: a systematic review of prospective research. *Am. J. Clin. Nutr.* 110: 196-211. doi:10.1093/ajcn/nqz080
- Velten J, Bieda A, Scholten S, Wannemüller A, & Margraf J, 2018. Lifestyle choices and mental health: A longitudinal survey with German and Chinese students. *BMC Public Health* [revista en Internet] 2018 [acceso 2 de julio de 2021]; 18(1): 1-15. 1-15.
- WHO, 2022. Mental health [WWW Document]. *World Heal. Organ.* URL <https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response> (accessed 9.19.23).
- Yoo, H., & Kim, N., 2020. Factors associated with lifestyle habits and mental health problems in Korean adolescents: The Korea national health and nutrition examination survey 2017-2018. *Int. J. Environ. Res. Public Health* 17: 1-15. doi:10.3390/ijerph17249418
- Zaman, R., Hankir, A., & Jemni, M., 2019. Lifestyle factors and mental health. *Psychiatr. Danub.* 31: 217-220.

## Tahap 4. Revisi : 27 Desember 2023

Heni Trisnowati <heni.trisnowati@pascakesmas.uad.ac.id>  
Kepada: Jurnal Promkes <jurnal.promkes@gmail.com>

27 Desember 2023 pukul 13.41

Dear Editor Jurnal Promkes FKM UNAIR

Berikut kami kirimkan hasil revisi sesuai masukan dari reviewer. Revisi kami beri warna font biru pada tulisannya. Semoga hasil revisi kami dapat diterima oleh reviewer. Demikian kami sampaikan, Terima kasih atas perhatiannya.

Salam Sehat,

**Dr. Heni Trisnowati, SKM., MPH**  
Postgraduate Program of Public Health  
Faculty of Public Health Universitas Ahmad Dahlan (UAD)  
Jl. Prof. DR. Soepomo Sh, Umbulharjo Yogyakarta Indonesia

[Kutipan teks disembunyikan]

 **Review\_3. Manuscript+for+Jurnal+Promkes+UNAIR\_061223-Revisi.docx**  
115K

### Abstract

**Background.** Globally, mental health has become a major issue in health development today. Campus communities cannot be separated from the problem of mental health. This study aims to describe the relationship between demographic and lifestyle factors with mental health status in campus communities.

**Method.** This study used a quantitative method with a cross-sectional design. Data collection was conducted through an online survey on 11-30 October 2021 at one of the universities in Yogyakarta. There were 503 respondents consisting of students, lecturers, and education staff. The instrument of mental health was the Self-Reporting Questionnaire-29 (SRQ-29).

**Result.** There were indications of needing referral due to anxiety and depression as much as 33.4%, and there were 5.28% of respondents requiring referral due to psychotic disorders, drugs, and PTSD. Demographic factors associated with mental health status were job status, sex, and age. Meanwhile, lifestyle aspects that are associated with mental health status are physical activity duration and fruit and vegetable consumption per day. This was indicated by the respective *p*-values of 0.000 (job status), 0.042 (sex), 0.027 (age), 0.003 (duration of physical activity), and 0.011 (consumption of fruits and vegetables per day). Furthermore, multivariate analysis showed that the duration of physical activity, as well as fruit and vegetable consumption, had a negative linear effect on the incidence of mental health disorders.

**Conclusion.** The main findings provide baseline data for developing healthy campuses as part of sustainable development goals (SDGs), particularly for mental health programs.

**Keywords:** mental health, lifestyle, healthy campus, sustainable development goals (SDGs)

### Introduction

Globally, mental health has been a central issue of health development over the past three decades. Mental health has an intrinsic and instrumental value critical to individual well-being. Mental health issues are a global goal of the third sustainable development goal (SDGs) to ensure healthy lives and promote the well-being of people of all ages (Tenaga *et al.*, 2022). Complex interactions between stresses and vulnerabilities at individual, community, and structural levels determine mental health (WHO, 2022). Approximately one billion people were experiencing mental health disorders, including 14% of adolescents worldwide, in 2019. Mental illness is the leading cause of disability, affecting one in every six years of life. In 2018, in Indonesia, more than 19 million people over the age of 15 suffered from mental and emotional illness, and more than 12 million people over the age of 15 suffered from depression (Rokom Kemenkes, 2021). One in ten Indonesians experience mental emotional disorders. The number of people with mental disorders in Yogyakarta is the highest in Indonesia (Kemenkes RI, 2018). One in three Indonesian adolescents experience mental health problems (Gloriabarus, 2022). There have been five recorded incidents of suicide experienced by students in Yogyakarta throughout 2023. The series of suicides experienced by students in Yogya this year is partly due to the increase in mental health disorders during the COVID-19 pandemic. During the pandemic, students are also mostly participating in online learning, making it very rare for them to interact directly with their friends or lecturers. Because they have no one to talk to, many of them choose to keep their problems to themselves. This leads to increased boredom and stress experienced by students, and in more severe situations can experience depression (Kumparan, 2023).

Lifestyle factors are crucial in positively influencing medical conditions, mental health, and the risk of disease, morbidity, and mortality. Measures such as having a healthy diet, participating in physical activity, stopping smoking, and avoiding the consumption of harmful substances have a major impact on mental health status. Achieving a healthy lifestyle includes creating a safe environment, ensuring adequate sleep patterns, managing stress, obtaining social support, and engaging in mentally beneficial activities (Zaman *et al.*, 2019). In addition, factors such as age (Idris & Hasri, 2023; Liu *et al.*, 2023), gender (França *et al.*, 2017; Kim *et al.*, 2022), and employment status (Idris & Hasri, 2023) can also affect mental health.

Mental health disorders can have a significant impact on a person's physical health. People suffering from severe mental illness are more susceptible to physical illnesses such as nutritional and metabolic diseases, cardiovascular diseases, viral diseases, respiratory diseases, musculoskeletal diseases, sexual dysfunction, pregnancy complications and stomatognathic diseases, and may be associated with obesity (De Hert *et al.*, 2011). In addition, some rare mental health disorders, such as somatic symptom disorder, illness-induced anxiety disorder, and conversion disorder, may also affect cognitive function (Razzak *et al.*, 2022). Lifestyle significantly influences a person's mental health, and a healthy lifestyle can help maintain and improve mental health (Yoo & Kim, 2020).

Health promotion is an approach to improving public health that requires broad participation. It can be understood as action and advocacy to address the full range of potentially modifiable determinants of health, including actions that enable people to adopt and maintain healthy lifestyles and those that create living conditions and environments that support health (Boxer, 2005). Mental health promotion is an integral part of health promotion theory and practice. Interventions can be applied at the population, subpopulation and individual levels, and across settings and sectors within and beyond the health sector (Singh *et al.*, 2022). Mental health promotion focuses on helping people to acquire the knowledge and skills they need to promote and protect their own mental well-being, while simultaneously working to create positives in our shared social environment that benefit us all (Kalra *et al.*, 2012). A healthy campus is part of a health promotion program and mental health is one of the issues of a healthy campus. This study analysis the relationship between demographic factors and lifestyle with mental health status among the campus community as baseline data to initiate healthy campus.

## Method

This study uses an explanatory quantitative method with a cross-sectional design (Swarjana, 2016). The research was conducted at one of the universities in Yogyakarta with the population being students, lecturers, and education staff. The campus that became the research location is one of the universities in Indonesia that won a research grant on developing a healthy campus from the Ministry of Health of the Republic of Indonesia in August 2021. Data collection was collected through an online survey from 11-21 October 2021. Meanwhile, the research sample was students, lecturers, and employees willing to voluntarily complete questionnaires distributed directly via WhatsApp. Sampling was carried out consecutively and obtained 503 respondents, including 108 lecturers and education staff and 395 students.

Mental health measurement tools using Self-Reporting Questionnaire-29. This questionnaire consists of 29 questions that the respondents themselves fill in. Mental health status categories are divided into 2, namely need to be referred and do not need to be referred to mental health professionals. The analysis of the questionnaire is as follows: If in questions 1-20 there are at least 5 (five) Yes answers, the respondent should be referred to mental health professionals (psychiatrists, psychologists, general practitioners, and nurses who have been trained in mental health). Meanwhile, for questions 21-29 if there is only 1 (one) Yes answer, then the respondent should be referred to a mental health professional (Kemenkes RI, 2019). Descriptive data analysis using SPSS version 22. This research has received a certificate of ethical feasibility from Respati University Yogyakarta with no: 228.3/FIKES/PL/XI/2021. Analysis was carried out up to multivariate analysis. Univariate analysis uses frequency distribution analysis, bivariate analysis uses the Chi-Square test, and multivariate analysis uses the binominal logistic regression test, provided that the p-value in the bivariate analysis is not more than 0.25 (Sugiyono, 2019).

## Result

### Description of Demographic Factors and Lifestyle With Mental Health Status

The majority of respondents were university students (78.7%). The average respondent came from the faculties of health, social sciences and economics, and science and technology (99.4%). Female respondents accounted for 80.3%, with an average age range between 17 and 45 years, which is around 94.8%. Most respondents participated in physical activity 1-3 times per week (77.5%) with an activity duration of less than 1 hour (73.6%). Most respondents consumed fruits and vegetables 1-3 times per day (85.1%). A total of 94% of the respondents did not smoke, and among those who smoked, most smoked less than or equal to 5 cigarettes per day (97.6%) with a smoking duration of

less than or equal to 5 years (98.2%). Furthermore, about 40% of respondents had anxiety and depression, about 35% had psychotic disorders, and 35.4% had PTSD. There were indications of needing referral due to psychological disorders, as much as 33.4%, and there were 5.28% of respondents requiring referral due to PTSD, drug, and psychotic disorders. A more detailed explanation is presented in Table 1.

Table I. Description of Demographic Factors, Lifestyle, and Mental Health Status of Respondents (N=503)

Variables	n	%
<b>Demographic Factors</b>		
Status		
Students	396	78.7
Lectures and Staff	107	21.3
Faculty		
Non-Faculty (HRD, LPPM)	3	6
Faculty of Public Health, Faculty of Social Science and Economics, Faculty of science & technology	500	99.4
Sex		
Male	99	19.7
Female	404	80.3
Age		
17 - 45 years	477	94.8
46 - 65 years	26	5.2
Lifestyle		
Total of Physical activity (Weeks)		
≤ 3 times	390	77.5
>3 times	113	22.5
Length of physical activity		
≤1 hour	370	73.6
>1 hour	133	26.4
Eat fruits and vegetables (day)		
≤3 times	428	85.1
>3 times	75	14.9
Smoking		
Yes	30	6
No	473	94
Smoking duration (Years)		
>5 Years	8	1.8
≤5 Years	495	98.2
Body mass index (BMI)		
Abnormal	207	41.2
Normal	296	58.8
<b>Mental Health Status</b>		
Anxiety & depression		
Yes	201	40
No	302	60
Drug uses		
Yes	4	0.8
No	499	99.2
Psychotic disorder		
Yes	181	36
No	322	64
Post-Trauma Syndrome Disorder		
Yes	178	35.4

No	325	64.6
<b>Mental Health Status : Anxiety &amp; depression (SRQ 1-20)</b>		
Need to refer	168	33.4
No need to refer	335	66.6
<b>Mental Health Status: Drug, psychotic, PTSD (SRQ 21-29)</b>		
Need to refer	26	5.2
No need to refer	477	94.8

### Relationship between Demographic and Lifestyle Factors with Mental Health Status

Demographic factors associated with mental health status (psychological disorders-SRQ 1-20) were employment status, gender, and age. Meanwhile, lifestyle aspects associated with mental health status (psychological disorders-SRQ 1-20) were duration of physical activity, and fruit and vegetable consumption per day. This results indicated by the respective p-values of 0.000 (job status), 0.042 (gender), 0.027 (age), 0.003 (duration of physical activity), and 0.011 (consumption of fruits and vegetables per day). The results shown in Table II. Furthermore, the results of bivariate tests between demographic factors, and lifestyle with mental health status for SRQ 21-29 (drugs, psychotic, PTSD) showed that only employment status was associated with mental health (p-value 0.000) (Table II). Correlation of Demographic and Lifestyle Factors with Mental Health Status (SRQ 1-20).

Table II. Correlation of Demographic and Lifestyle Factors with Mental Health Status (SRQ 1-20)

Variables	Mental Health Status No. 1-20			p-value	PR (95% CI)
	Need to refer	No need to refer	Total		
<b>Job Status</b>					
Students	155 (30.8%)	241 (47.9%)	396 (78.7%)	0.000*	3.22 (1.90-5.44)
Lecturers & Staff	13 (2.6%)	94 (18.7%)	107 (21.3%)		
<b>Faculty</b>					
Non Faculty	0 (0%)	3 (0.6%)	3 (0.6%)	0.554	1.50 (1.41-1.60)
Faculty of Public Health, Faculty of Social Science and Economics, faculty of science & technology	168 (33.4%)	332 (66%)	500 (99.4%)		
<b>Sex</b>					
Male	24 (4.8%)	75 (14.9%)	99 (19.7%)	0.042*	0.68 (0.46-0.98)
Female	144 (28.6%)	260 (51.7%)	404 (80.3%)		
<b>Age</b>					
17 - 45 years	165 (32.8%)	312 (62%)	477 (94.8%)	0.027*	2.99 (1.02-8.75)
46 - 65 years	3 (0.6%)	23 (4.6%)	26 (5.2%)		
<b>Total of Physical activity (Weeks)</b>					
≤ 3 times	135 (26.8%)	255 (50.7%)	390 (77.5%)	0.337	1.185 (0.863-1.629)
>3 times	33 (6.6%)	80 (15.9%)	113 (22.5%)		
<b>Length of physical activity</b>					
≤1 hour	138 (27.4%)	232 (46.1%)	370 (73.6%)	0.003*	1.65 (1.17-2.32)
>1 hour	30 (6%)	103 (20.5%)	133 (26.4%)		
<b>Eat fruits and vegetables (day)</b>					
≤3 times	153 (30.4%)	275 (54.7%)	428 (85.1%)	0.011*	1.78 (1.11-2.86)
>3 times	15 (3.0%)	60 (11.9%)	75 (14.9%)		
<b>Smoking</b>					
Yes	10 (2%)	20 (4%)	30 (6%)	1.000	1.00 (0.59-1.68)
No	158 (31.4%)	315 (62.6%)	473 (94%)		
<b>Smoking duration (Years)</b>					
>5 Years	2 (0.4%)	6 (1.2%)	8 (1.6%)	0.724	0.74 (0.22-2.49)
≤5 Years	166 (33%)	329 (65.4%)	495 (98.4%)		
<b>Body mass index (BMI)</b>					
Abnormal	67 (13.3%)	140 (27.8%)	207 (41.2%)	0.753	0.94 (0.73-1.22)
Normal	101 (20.1%)	195 (38.8%)	296 (58.8%)		

### Multivariate Analysis of Demographic and Lifestyle Factors with Mental Health Status



The results of multivariate analysis showed that employment status, gender, and age did not influence mental health in questions 1-20. On the other hand, the duration of physical activity and fruit and vegetable consumption significantly influenced mental health in questions 1-20. Variables tested multivariately must have a p-value  $\leq 0.25$ . Physical activity and fruit and vegetable consumption each have a B (beta) value of -0.757 and -0.977. These values indicate a negative linear relationship between physical activity levels and fruit and vegetable intake and the incidence of mental health disorders. From these results, it can be concluded that the higher the level of physical activity and the greater the intake of fruit and vegetables, the lower the possibility of mental health disorders. Thus, physical activity and consumption of fruits and vegetables are preventive or protective factors against mental health disorders. Respondents with physical activity more than 3 times a week have a chance of not experiencing mental health disorders by 0.46 compared to respondents with physical activity less than 3 times a week. Respondents with fruit and vegetable consumption more than 3 times a day have a chance of not experiencing mental health disorders by 0.48 compared to respondents with fruit and vegetable consumption less than 3 times a day. Meanwhile, the multivariate results also showed that the variables of employment status and smoking did not affect mental health status in questions 21-29. A more detailed explanation is shown in Table III below.

Table III. Multivariate Analysis of Demographic and Lifestyle Factors with Mental Health Status

Variables	B	P value	Exponen (B)/ Odds Ratio
<b>Mental Health Status (SRQ 1-20)</b>			
Job Status	-18.762	0.999	0.000
Sex	0.253	0.376	1.288
Age	-0.039	0.957	0.961
Duration of Physic Activity	-0.757	0.002*	0.469
Eating Fruits & Vegetables	-0.977	0.029*	0.488
<b>Mental Health Status (SRQ 21-29)</b>			
Job Status	18.721	0.999	0.000
Smoking	0.700	0.281	2.014

## Discussion

The SDGs are global and national commitments in an effort to improve the welfare of society, including 17 global goals and targets for 2030 declared by both developed and developing countries at the UN General Assembly in September 2015. The 17 goals are: (1) No Poverty; (2) No Hunger; (3) Healthy and Prosperous Lives; (4) Quality Education; (5) Gender Equality; (6) Clean Water and Sanitation; (7) Clean and Affordable Energy; (8) Decent Work and Economic Growth; (9) Industry, Innovation and Infrastructure; (10) Reduced Inequalities; (11) Sustainable Cities and Settlements; (12) Responsible Consumption and Production; (13) Addressing Climate Change; (14) Ocean Ecosystems; (15) Land Ecosystems; (16) Peace, Justice and Resilient Institutions; (17) Partnerships for the Goals (Bapenas, 2023).

Improving the mental health of the campus community is part of the third SDGS goal, which is to ensure healthy lives and improve the well-being of people of all ages. The mental health program is one of the healthy campus programs at the university. The Sustainable Development Goals (SDGs) is a global development agenda to end poverty, improve well-being, and protect the planet, through the achievement of 17 goals by 2030 (Tenaga *et al.*, 2022).

The results showed that mental health category No. 1-20 refers to anxiety and depression. In this category, around 40% of the total respondents experienced anxiety and depression, with 33.4% of them needing to be referred for further treatment. The results of this study are in line with the results of research at universities in Bangladesh which states that mental health disorders include

"psychologically distressed" relating to the anxiety levels they reported. At the same time, depression (35%) and stress remained (20%) (Gamage & Herath, 2021). Furthermore, mental health in categories No. 21-29 refers to substance use, psychotic disorders, and PTSD. In this category, around 0.8% of respondents showed indications of drug use, 36% experienced psychotic disorders, and 35.4% experienced PTSD, of which 5.2% needed to be referred.

The most significant correlates of positive screening were older age and female gender (Odrizola-González *et al.*, 2020). Various studies have also shown that mental health disorders are more common among students than among workers (lecturers and educational staff) (Odrizola-González *et al.*, 2020; Aziz *et al.*, 2021). Different proportions are also seen in male and female students, possibly due to different responses and perspectives in dealing with problems and pressures from the environment and campus (Rosemary Rizanna, 2019)

This study's results align with Dale *et al.*'s findings, which show that lifestyle factors such as physical activity are associated with better mental health (Dale *et al.*, 2021). Another study in Switzerland also stated that loneliness is associated with poor physical and mental health, as well as unhealthy lifestyles (Richard *et al.*, 2017). Other findings from Perret *et al.*'s research suggest that lifestyle affects levels of resilience, affecting mental health (Perret *et al.*, 2020).

Other studies have also shown that exercise, in general, is associated with better mood and improved quality of life. The impact of physical health on mental health is well-documented, with many psychological effects, such as self-esteem, cognitive function, mood, depression, and quality of life, remaining the focus of further research. These findings confirm the importance of exercise in improving outcomes for people with mental illness (Mahindru *et al.*, 2023). Lifestyle changes influence changes in mental health. Increased leisure time, activity, and decreased sleep duration are the lifestyle changes most closely associated with changes in mental health (Tanaka *et al.*, 2021).

The results showed that healthy lifestyle choices, such as increasing physical activity, not smoking, and maintaining a regular social rhythm, were associated with improved mental health over 1 year (Velten J *et al.*, 2018). Economic challenges, particularly a sense of despondency, contribute to the increase in mental health issues. Measures such as social distancing and other societal challenges further exacerbate depression within communities, which mostly led people to smoke as stress release during the health pandemic (Rosemary *et al.*, 2023)

Based on Dharmayani *et al.*'s research, fruit and vegetable intake is associated with mental health, including reducing the risk of depression (Dharmayani *et al.*, 2021). In healthy adults, vegetable consumption is also associated with psychological health (Tuck *et al.*, 2019). A Japanese study showed that higher fruit and vegetable consumption in middle age was associated with a lower risk of developing major depressive disorder later in life (Narita *et al.*, 2022). Higher fruit and vegetable consumption was also associated with lower levels of psychological distress (Richard *et al.*, 2015), and higher fish, fruit, and vegetable intake was also associated with lower incidence of mood disorders (Huang *et al.*, 2019).

There are many ways to overcome mental health problems, such as a) asking for help because we do not have to face everything alone, talking to people we trust and discussing what the problem is; b) breathing slowly and long. This simple action will reduce anxiety levels; c) eating a healthy and balanced menu because the body needs the energy to overcome stress; d) taking time to relax and do activities that you like; e) exercise regularly; f) doing tasks regularly, not piling up work (Kemenkes RI, 2019).

Expanding access to services, promoting promotive efforts, and increasing public awareness of mental health disorders should be a priority direction of national mental health policy. By not always relying on medical treatment and focusing more on family and community-based care, the welfare of people with mental disorders can certainly be improved (Ridlo & Zein, 2018).

Mental health prevention and control efforts that can be carried out include advocacy and socialization to regents/mayors and DPRD's to make policies that favor the improvement of community mental health; optimizing the role of district/provincial health offices in mental health efforts; increasing the coverage of mental health services in health services; building effective

partnerships with non-governmental organizations, professional organizations, the private sector, by forming community mental health teams in provinces, districts/cities; encouraging family and community empowerment in mental health efforts; and developing mental health information systems through various surveys and research (Kemenkes RI, 2019).

The key to successful prevention and treatment of mental health problems is to increase and optimize preventive, curative, and rehabilitative efforts. This can be done by encouraging university leaders to implement a healthy campus program. In addition, early detection of mental health problems in the campus environment needs to be intensified. The implementation of a healthy campus can be strengthened through regulations such as a healthy campus provost's decree. In addition, partnerships with health centers and hospitals must be established for further treatment of campus residents with mental health problems.

## Conclusion

Factors such as gender, age, physical activity, and fruit and vegetable consumption were associated with mental health condition (anxiety and depression). Job status is also associated with mental health problem both psychological nor substance use, psychotic disorders, and PTSD. The variable length of physical activity affects mental health condition. It is necessary to implement prevention and treatment programs for mental health disorders, such as anxiety and depression, especially among university students. This finding provides baseline data for developing a healthy campus, particularly for mental health programs. The program, e.g. increasing health literacy related to mental health, campaigns to increase physical activity, fruit and vegetable consumption, and avoiding smoking, are needed to help improve mental health status. In addition, advocate university leaders to create healthy campus regulations, provide mental health counselling, collaborate with the health office for further treatment, and ensure the program's sustainability.

## References

- Aziz, Z.A., Ayu, D.A., Bancin, F.M., Syara, S.G., Manalu, W.B., S, R.A., et al., 2021. Gambaran Kesehatan Mental Mahasiswa di Masa Pandemi Covid-19. *J. Dunia Kesmas* 10: 130-135. doi:10.33024/jdk.v10i1.3256
- Bapenas, 2023. Agenda 2030 untuk Pembangunan Berkelanjutan [WWW Document]. *Badan Perenc. Pembang. Nas.* URL <https://sdgs.bappenas.go.id/id/>
- Boxer, J., 2005. Promoting mental health. *Handb. Community Ment. Heal. Nurs.* 149-163. doi:10.5840/ncbq201616462
- Dale, R., Budimir, S., Probst, T., Stippl, P., & Pieh, C., 2021. Mental health during the covid-19 lockdown over the christmas period in austria and the effects of sociodemographic and lifestyle factors. *Int. J. Environ. Res. Public Health* 18. doi:10.3390/ijerph18073679
- De Hert, M., Correll, C.U., Bobes, J., Cetkovich-Bakmas, M., Cohen, D.A.N., Asai, I., et al., 2011. Physical illness in patients with severe mental disorders. I. Prevalence, impact of medications and disparities in health care. *World Psychiatry* 10: 52-77. doi:10.1002/j.2051-5545.2011.tb00014.x
- Dharmayani, P.N.A., Juergens, M., Allman-Farinelli, M., & Mihrshahi, S., 2021. Association between fruit and vegetable consumption and depression symptoms in young people and adults aged 15-45: A systematic review of cohort studies. *Int. J. Environ. Res. Public Health* 18: 1-22. doi:10.3390/ijerph18020780
- França, M.H., Barreto, S.M., Pereira, F.G., de Andrade, L.H.S.G., de Paiva, M.C.A., & Viana, M.C., 2017. Mental disorders and employment status in the São Paulo Metropolitan Area, Brazil: Gender differences and use of health services. *Cad. Saude Publica* 33: 1-14. doi:10.1590/0102-311X00154116
- Gamage, G.P., & Herath, H.M.C.J., 2021. Mental health of undergraduate distance learners: a cross-sectional study. *Asian Assoc. Open Univ. J.* 16: 271-286. doi:10.1108/AAOUJ-08-2021-0097
- Gloriabarus, 2022. Hasil Survei I-NAMHS: Satu dari Tiga Remaja Indonesia Memiliki Masalah Kesehatan Mental [WWW Document]. *Univ. Gadjah Mada.* URL <https://ugm.ac.id/id/berita/23086-hasil-survei-i-namhs-satu-dari-tiga-remaja-indonesia-memiliki-masalah-kesehatan-mental/>
- Huang, P., O'Keefe, M., Elia, C., Karamanos, A., Goff, L.M., Maynard, M., et al., 2019. Fruit and

- vegetable consumption and mental health across adolescence: Evidence from a diverse urban British cohort study. *Int. J. Behav. Nutr. Phys. Act.* 16. doi:10.1186/s12966-019-0780-y
- Idris, H., & Hasri, S.N., 2023. Factors Associated with the Symptom of Depression among Elderly in Indonesian Urban Areas. *J. Psikol.* 50: 45. doi:10.22146/jpsi.72406
- Kalra, G., Christodoulou, G., Jenkins, R., Tsiapas, V., Christodoulou, N., Lecic-Tosevski, D., et al., 2012. Mental health promotion: Guidance and strategies. *Eur. Psychiatry* 27: 81-86. doi:10.1016/j.eurpsy.2011.10.001
- Kemendes RI, 2019. Pedoman Teknis Penyelenggaraan Kampus Sehat. Jakarta, Indonesia.
- Kemendes RI, 2018. Laporan Risdas 2018, Kementerian Kesehatan RI. Badan Penelitian dan Pengembangan Kesehatan (Balitbangkes), Jakarta, Indonesia.
- KEMENKES RI, 2019. Situasi Kesehatan Jiwa Di Indonesia. *InfoDATIN*.
- Kim, Y.K., Yu, M., Moon, S.S., Maleku, A., Um, M.Y., & Tefera, G.M., 2022. Sociodemographic characteristics, preventive behaviors, and the mental health status of social work students in the US during the COVID-19 pandemic. *Soc. Work Ment. Health* 20: 578-603. doi:10.1080/15332985.2022.2047870
- Kumparan, 2023. 5 Kasus Bunuh Diri Mahasiswa Yogya, Pakar: Buntut Gangguan Mental Akibat Pandemi | kumparan.com [WWW Document]. URL <https://kumparan.com/pandangan-jogja/5-kasus-bunuh-diri-mahasiswa-yogya-pakar-buntut-gangguan-mental-akibat-pandemi-21K0bLiErHc> (accessed 12.26.23).
- Liu, Y., Xu, Y., Yang, X., Miao, G., Wu, Y., & Yang, S., 2023. The prevalence of anxiety and its key influencing factors among the elderly in China. *Front. Psychiatry* 14: 1-11. doi:10.3389/fpsy.2023.1038049
- Mahindru, A., Patil, P., & Agrawal, V., 2023. Role of Physical Activity on Mental Health and Well-Being: A Review. *Cureus* 15: 1-7. doi:10.7759/cureus.33475
- Narita, Z., Nozaki, S., Shikimoto, R., Hori, H., Kim, Y., Mimura, M., et al., 2022. Association between vegetable, fruit, and flavonoid-rich fruit consumption in midlife and major depressive disorder in later life: the JPHC Saku Mental Health Study. *Transl. Psychiatry* 12: 1-6. doi:10.1038/s41398-022-02166-8
- Odrozola-González, P., Planchuelo-Gómez, Á., Irurtia, M.J., & de Luis-García, R., 2020. Psychological effects of the COVID-19 outbreak and lockdown among students and workers of a Spanish university. *Psychiatry Res.* 290: 113108. doi:10.1016/j.psychres.2020.113108
- Perret, J.L., Best, C.O., Coe, J.B., Greer, A.L., Khosa, D.K., & Jones-Bitton, A., 2020. Association of demographic, career, and lifestyle factors with resilience and association of resilience with mental health outcomes in veterinarians in Canada. *J. Am. Vet. Med. Assoc.* 257: 1057-1068. doi:10.2460/JAVMA.2020.257.10.1057
- Razzak, A.N., Orlando, N.A., Angelette, A., Kumar, V., Anderson, D.J., Hasoon, J., et al., 2022. Rare Mental Health Disorders Affecting Urologic Care: A Comprehensive Review. *Heal. Psychol. Res.* 10: 1-14. doi:10.52965/001c.38674
- Richard, A., Rohrmann, S., Vandeleur, C.L., Mohler-Kuo, M., & Eichholzer, M., 2015. Associations between fruit and vegetable consumption and psychological distress: Results from a population-based study. *BMC Psychiatry* 15: 1-8. doi:10.1186/s12888-015-0597-4
- Richard, A., Rohrmann, S., Vandeleur, C.L., Schmid, M., Barth, J., & Eichholzer, M., 2017. Loneliness is adversely associated with physical and mental health and lifestyle factors: Results from a Swiss national survey. *PLoS One* 12: 1-18. doi:10.1371/journal.pone.0181442
- Ridlo, I.A., & Zein, R.A., 2018. Arah Kebijakan Kesehatan Mental: Tren Global dan Nasional Serta Tantangan Aktual. *Bul. Penelit. Kesehat.* 46: 45-52. doi:10.22435/bpk.v46i1.56
- Rokom Kemendes, 2021. Kemendes Beberkan Masalah Permasalahan Kesehatan Jiwa di Indonesia [WWW Document]. *Sehat Negeriku Sehatlah Bangsaku, Kementeri. Kesehat. RI*. URL <https://sehatnegeriku.kemkes.go.id/baca/rilis-media/20211007/1338675/kemendes-beberkan-masalah-permasalahan-kesehatan-jiwa-di-indonesia/> (accessed 9.19.23).
- Rosemary, R., Ciptaningtyas, R., Usman, S., Ilmu Sosial dan Politik, F., Syiah Kuala, U., Teuku Nyak Arief, J., et al., 2023. Food and cigarettes expenses during COVID-19 pandemic on diet quality in Jakarta and surroundings. *AcTion Aceh Nutr. J.* 8: 278-287. doi:10.30867/ACTION.V8I2.927
- Rosemary, R., Pertiwi, P., & Denna, I., 2019. #StayAlive - Inside Indonesia: The peoples and cultures of Indonesia [WWW Document]. *Insid. Indones.* URL <https://www.insideindonesia.org/editions/edition-134-oct-dec-2018/stayalive-2> (accessed

11.13.23).

- Singh, V., Kumar, A., & Gupta, S., 2022. Mental Health Prevention and Promotion—A Narrative Review. *Front. Psychiatry* 13: 1-17. doi:10.3389/fpsy.2022.898009
- Sugiyono, 2019. *Metode Penelitian Kuantitatif*. Penerbit Alfabeta, Bandung.
- Swarjana, I.K., 2016. *Metodologi Penelitian Kesehatan* (Ed. Revisi). ANDI, Yogyakarta.
- Tanaka, K., Tahara, M., Mashizume, Y., & Takahashi, K., 2021. Effects of lifestyle changes on the mental health of healthcare workers with different sense of coherence levels in the era of COVID-19 pandemic. *Int. J. Environ. Res. Public Health* 18: 1-11. doi:10.3390/ijerph18062801
- Tenaga, M., Dan, K., Republik, T., Tenaga, K., Dan, K., & Fungsi, D.A.N., 2022. Perpres No 111: Pelaksanaan Pencapaian Tujuan Pembangunan Berkelanjutan.
- Tuck, N.J., Farrow, C., & Thomas, J.M., 2019. Assessing the effects of vegetable consumption on the psychological health of healthy adults: a systematic review of prospective research. *Am. J. Clin. Nutr.* 110: 196-211. doi:10.1093/ajcn/nqz080
- Velten J, Bieda A, Scholten S, Wannemüller A, & Margraf J, 2018. Lifestyle choices and mental health: A longitudinal survey with German and Chinese students. *BMC Public Health* [revista en Internet] 2018 [acceso 2 de julio de 2021]; 18(1): 1-15. 1-15.
- WHO, 2022. Mental health [WWW Document]. *World Heal. Organ.* URL <https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response> (accessed 9.19.23).
- Yoo, H., & Kim, N., 2020. Factors associated with lifestyle habits and mental health problems in Korean adolescents: The Korea national health and nutrition examination survey 2017-2018. *Int. J. Environ. Res. Public Health* 17: 1-15. doi:10.3390/ijerph17249418
- Zaman, R., Hankir, A., & Jemni, M., 2019. Lifestyle factors and mental health. *Psychiatr. Danub.* 31: 217-220.

## Tahap 5. Artikel diterima : 27 Desember 2023

Jurnal Promkes <jurnal.promkes@gmail.com>

27 Desember 2023 pukul 16.50

Kepada: Heni Trisnowati <heni.trisnowati@pascakesmas.uad.ac.id>

Dear Author,

Heni Trisnowati Kami dari Jurnal Promkes Fakultas Kesehatan Masyarakat Universitas Airlangga hendak menginformasikan bahwa artikel Anda dengan judul:

### **Opportunity for a Healthy Campus Program as a Sustainable Development Goal: Assessing Lifestyle Factor and Mental Health Status**

Dinyatakan **DITERIMA** dan akan dipublikasikan pada bulan **Januari 2024 (Volume 13 Special Issue 1)** mendatang. Untuk itu, kami imbau untuk memenuhi segala bentuk administrasi penerimaan, yakni:

1) Membayar uang **Article Publication Charge (APC)** sebesar **Rp 1.000.000** ke **BANK BSI 1111119119 a.n. Jurnal Promosi Kesehatan**;

2) Menyerahkan dokumen etik (apabila naskah berupa artikel ilmiah/bukan literature review) dan pernyataan orisinalitas (template dokumen tersedia di laman website kami);

3) Menyerahkan dokumen final atas revisi artikel yang telah disesuaikan berdasarkan revisi dari reviewer dan nama serta afiliasi penulis secara lengkap.

Seluruh dokumen termasuk bukti pembayaran dikirimkan kembali ke surel ini paling lambat **Rabu, 3 Januari 2024** untuk dapat segera kami proses.

Terima kasih

---

## Tahap 6 : Pembayaran APC dan kelengkapannya : 28 Desember 2024

Heni Trisnowati <heni.trisnowati@pascakesmas.uad.ac.id>  
Kepada: Jurnal Promkes <jurnal.promkes@gmail.com>

28 Desember 2023 pukul 10.29

Dear Editor Jurnal Promkes UNAIR

Berikut kami kirimkan beberapa file sesuai dengan arahan editor.

1. Final revisi dengan mencantumkan semua co author berikut alamat institusi
  2. Surat keterangan Etik
  3. Bukti Transfer
  4. Surat Pernyataan Orisinalitas
- Demikian kami sampaikan. Terima kasih.

Salam Sehat,

**Dr. Heni Trisnowati, SKM., MPH**

Postgraduate Program of Public Health

Faculty of Public Health Universitas Ahmad Dahlan (UAD)

Jl. Prof. DR. Soepomo Sh, Umbulharjo Yogyakarta Indonesia

[Kutipan teks disembunyikan]

### 4 lampiran



Bukti transfer-Trisnowati H.jpeg  
84K

 Review\_3. Manuscript+for+Jurnal+Promkes+UNAIR\_061223-Revisi-final.docx  
115K

 surat keterangan etik hpu.pdf  
116K

 Surat Pernyataan Orisinalitas-Trisnowati H.pdf  
174K

### ***Opportunity for a Healthy Campus Program as a Sustainable Development Goal: Assessing Lifestyle Factor and Mental Health Status***

Heni Trisnowati<sup>1</sup>, Rika Yulianti<sup>1</sup>, Rizanna Rosemary<sup>2</sup>, Ariyanto Nugroho<sup>3</sup>

1. Postgraduate Program of Public Health, Faculty of Public Health, Universitas Ahmad Dahlan

2. Department of Communication Studies, Faculty of Social and Political Sciences, Universitas Syiah Kuala

3. Departement of Public Health, Faculty of Health Sciences, Universitas Respati Yogyakarta

Email: [heni.trisnowati@pascakesmas.uad.ac.id](mailto:heni.trisnowati@pascakesmas.uad.ac.id)

#### **Abstract**

**Background.** Globally, mental health has become a major issue in health development today. Campus communities cannot be separated from the problem of mental health. This study aims to

describe the relationship between demographic and lifestyle factors with mental health status in campus communities.

**Method.** This study used a quantitative method with a cross-sectional design. Data collection was conducted through an online survey on 11-30 October 2021 at one of the universities in Yogyakarta. There were 503 respondents consisting of students, lecturers, and education staff. The instrument of mental health was the Self-Reporting Questionnaire-29 (SRQ-29).

**Result.** There were indications of needing referral due to anxiety and depression as much as 33.4%, and there were 5.28% of respondents requiring referral due to psychotic disorders, drugs, and PTSD. Demographic factors associated with mental health status were job status, sex, and age. Meanwhile, lifestyle aspects that are associated with mental health status are physical activity duration and fruit and vegetable consumption per day. This was indicated by the respective *p*-values of 0.000 (job status), 0.042 (sex), 0.027 (age), 0.003 (duration of physical activity), and 0.011 (consumption of fruits and vegetables per day). Furthermore, multivariate analysis showed that the duration of physical activity, as well as fruit and vegetable consumption, had a negative linear effect on the incidence of mental health disorders.

**Conclusion.** The main findings provide baseline data for developing healthy campuses as part of sustainable development goals (SDGs), particularly for mental health programs.

**Keywords:** mental health, lifestyle, healthy campus, sustainable development goals (SDGs)

## Introduction

Globally, mental health has been a central issue of health development over the past three decades. Mental health has an intrinsic and instrumental value critical to individual well-being. Mental health issues are a global goal of the third sustainable development goal (SDGs) to ensure healthy lives and promote the well-being of people of all ages (Tenaga *et al.*, 2022). Complex interactions between stresses and vulnerabilities at individual, community, and structural levels determine mental health (WHO, 2022). Approximately one billion people were experiencing mental health disorders, including 14% of adolescents worldwide, in 2019. Mental illness is the leading cause of disability, affecting one in every six years of life. In 2018, in Indonesia, more than 19 million people over the age of 15 suffered from mental and emotional illness, and more than 12 million people over the age of 15 suffered from depression (Rokom Kemenkes, 2021). One in ten Indonesians experience mental and emotional disorders. The number of people with mental disorders in Yogyakarta is the highest in Indonesia (Kemenkes RI, 2018). One in three Indonesian adolescents experiences mental health problems (Gloriobarus, 2022). There have been five recorded incidents of suicide experienced by students in Yogyakarta throughout 2023. The series of suicides experienced by students in Yogya this year is partly due to the increase in mental health disorders during the COVID-19 pandemic. During the pandemic, students are also mostly participating in online learning, making it very rare for them to interact directly with their friends or lecturers. Because they have no one to talk to, many of them choose to keep their problems to themselves. This leads to increased boredom and stress experienced by students, and in more severe situations can experience depression (Kumparan, 2023).

Lifestyle factors are crucial in positively influencing medical conditions, mental health, and the risk of disease, morbidity, and mortality. Measures such as having a healthy diet, participating in physical activity, stopping smoking, and avoiding the consumption of harmful substances have a major impact on mental health status. Achieving a healthy lifestyle includes creating a safe environment, ensuring adequate sleep patterns, managing stress, obtaining social support, and engaging in mentally beneficial activities (Zaman *et al.*, 2019). In addition, factors such as age (Idris & Hasri, 2023; Liu *et al.*, 2023), gender (França *et al.*, 2017; Kim *et al.*, 2022), and employment status (Idris & Hasri, 2023) can also affect mental health.

Mental health disorders can have a significant impact on a person's physical health. People suffering from severe mental illness are more susceptible to physical illnesses such as nutritional and metabolic diseases, cardiovascular diseases, viral diseases, respiratory diseases, musculoskeletal diseases, sexual dysfunction, pregnancy complications, and stomatognathic diseases, and may be associated with obesity (De Hert *et al.*, 2011). In addition, some rare mental health disorders, such as somatic symptom disorder, illness-induced anxiety disorder, and conversion disorder, may also



affect cognitive function (Razzak *et al.*, 2022). Lifestyle significantly influences a person's mental health, and a healthy lifestyle can help maintain and improve mental health (Yoo & Kim, 2020).

Health promotion is an approach to improving public health that requires broad participation. It can be understood as action and advocacy to address the full range of potentially modifiable determinants of health, including actions that enable people to adopt and maintain healthy lifestyles and those that create living conditions and environments that support health (Boxer, 2005). Mental health promotion is an integral part of health promotion theory and practice. Interventions can be applied at the population, subpopulation, and individual levels, and across settings and sectors within and beyond the health sector (Singh *et al.*, 2022). Mental health promotion focuses on helping people acquire the knowledge and skills they need to promote and protect their mental well-being, while simultaneously working to create positives in our shared social environment that benefit us all (Kalra *et al.*, 2012). A healthy campus is part of a health promotion program and mental health is one of the issues of a healthy campus. This study analyzes the relationship between demographic factors and lifestyle with mental health status among the campus community as baseline data to initiate a healthy campus.

### **Method**

This study uses an explanatory quantitative method with a cross-sectional design (Swarjana, 2016). The research was conducted at one of the universities in Yogyakarta with the population being students, lecturers, and education staff. The campus that became the research location is one of the universities in Indonesia that won a research grant on developing a healthy campus from the Ministry of Health of the Republic of Indonesia in August 2021. Data collection was collected through an online survey from 11-21 October 2021. Meanwhile, the research sample was students, lecturers, and employees willing to voluntarily complete questionnaires distributed directly via WhatsApp. Sampling was carried out consecutively and obtained 503 respondents, including 108 lecturers and education staff and 395 students.

Mental health measurement tools using Self-Reporting Questionnaire-29. This questionnaire consists of 29 questions that the respondents themselves fill in. Mental health status categories are divided into 2, namely need to be referred and do not need to be referred to mental health professionals. The analysis of the questionnaire is as follows: If in questions 1-20 there are at least 5 (five) Yes answers, the respondent should be referred to mental health professionals (psychiatrists, psychologists, general practitioners, and nurses who have been trained in mental health). Meanwhile, for questions 21-29 if there is only 1 (one) Yes answer, then the respondent should be referred to a mental health professional (Kemenkes RI, 2019). Descriptive data analysis using SPSS version 22. This research has received a certificate of ethical feasibility from Respati University Yogyakarta with no: 228.3/FIKES/PL/XI/2021. Analysis was carried out up to multivariate analysis. Univariate analysis uses frequency distribution analysis, bivariate analysis uses the Chi-Square test, and multivariate analysis uses the binominal logistic regression test, provided that the p-value in the bivariate analysis is not more than 0.25 (Sugiyono, 2019).

### **Result**

#### **Description of Demographic Factors and Lifestyle With Mental Health Status**

The majority of respondents were university students (78.7%). The average respondent came from the faculties of health, social sciences and economics, and science and technology (99.4%). Female respondents accounted for 80.3%, with an average age range between 17 and 45 years, which is around 94.8%. Most respondents participated in physical activity 1-3 times per week (77.5%) with an activity duration of less than 1 hour (73.6%). Most respondents consumed fruits and vegetables 1-3 times per day (85.1%). A total of 94% of the respondents did not smoke, and among those who smoked, most smoked less than or equal to 5 cigarettes per day (97.6%) with a smoking duration of less than or equal to 5 years (98.2%). Furthermore, about 40% of respondents had anxiety and depression, about 35% had psychotic disorders, and 35.4% had PTSD. There were indications of needing referral due to psychological disorders, as much as 33.4%, and there were 5.28% of respondents requiring referral due to PTSD, drug, and psychotic disorders. A more detailed explanation is presented in Table 1.

Table I. Description of Demographic Factors, Lifestyle, and Mental Health Status of Respondents (N=503)

Variables	n	%
<b>Demographic Factors</b>		
Job Status		
Students	396	78.7
Lectures and Staff	107	21.3
Faculty		
Non-Faculty (HRD, LPPM)	3	6
Faculty of Public Health, Faculty of Social Science and Economics, Faculty of science & technology	500	99.4
Sex		
Male	99	19.7
Female	404	80.3
Age		
17 - 45 years	477	94.8
46 - 65 years	26	5.2
Lifestyle		
Total of Physical activity (Weeks)		
≤ 3 times	390	77.5
>3 times	113	22.5
Length of physical activity		
≤1 hour	370	73.6
>1 hour	133	26.4
Eat fruits and vegetables (day)		
≤3 times	428	85.1
>3 times	75	14.9
Smoking		
Yes	30	6
No	473	94
Smoking duration (Years)		
>5 Years	8	1.8
≤5 Years	495	98.2
Body mass index (BMI)		
Abnormal	207	41.2
Normal	296	58.8
<b>Mental Health Status</b>		
Anxiety & depression		
Yes	201	40
No	302	60
Drug uses		
Yes	4	0.8
No	499	99.2
Psychotic disorder		
Yes	181	36
No	322	64
Post-Trauma Syndrome Disorder		
Yes	178	35.4
No	325	64.6
<b>Mental Health Status :</b>		
<b>Anxiety &amp; depression (SRQ 1-20)</b>		
Need to refer	168	33.4
No need to refer	335	66.6
<b>Mental Health Status:</b>		

Drug, psychotic, PTSD (SRQ 21-29)		
Need to refer	26	5.2
No need to refer	477	94.8

### Relationship between Demographic and Lifestyle Factors with Mental Health Status

Demographic factors associated with mental health status (psychological disorders-SRQ 1-20) were employment status, gender, and age. Meanwhile, lifestyle aspects associated with mental health status (psychological disorders-SRQ 1-20) were duration of physical activity, and fruit and vegetable consumption per day. This results indicated by the respective p-values of 0.000 (job status), 0.042 (gender), 0.027 (age), 0.003 (duration of physical activity), and 0.011 (consumption of fruits and vegetables per day). The results are shown in Table II. Furthermore, the results of bivariate tests between demographic factors, and lifestyle with mental health status for SRQ 21-29 (drugs, psychotic, PTSD) showed that only job status was associated with mental health (p-value 0,000).

Table II. Correlation of Demographic and Lifestyle Factors with Mental Health Status (SRQ 1-20)

Variables	Mental Health Status No. 1-20			p-value	PR (95% CI)
	Need to refer	No need to refer	Total		
<b>Job Status</b>					
Students	155 (30.8%)	241 (47.9%)	396 (78.7%)	0.000*	3.22 (1.90-5.44)
Lecturers & Staff	13 (2.6%)	94 (18.7%)	107 (21.3%)		
<b>Faculty</b>					
Non Faculty	0 (0%)	3 (0.6%)	3 (0.6%)	0.554	1.50 (1.41-1.60)
Faculty of Public Health, Faculty of Social Science and Economics, faculty of science & technology	168 (33.4%)	332 (66%)	500 (99.4%)		
<b>Sex</b>					
Male	24 (4.8%)	75 (14.9%)	99 (19.7%)	0.042*	0.68 (0.46-0.98)
Female	144 (28.6%)	260 (51.7%)	404 (80.3%)		
<b>Age</b>					
17 - 45 years	165 (32.8%)	312 (62%)	477 (94.8%)	0.027*	2.99 (1.02-8.75)
46 - 65 years	3 (0.6%)	23 (4.6%)	26 (5.2%)		
<b>Total of Physical activity (Weeks)</b>					
≤ 3 times	135 (26.8%)	255 (50.7%)	390 (77.5%)	0.337	1.185 (0.863-1.629)
>3 times	33 (6.6%)	80 (15.9%)	113 (22.5%)		
<b>Length of physical activity</b>					
≤1 hour	138 (27.4%)	232 (46.1%)	370 (73.6%)	0.003*	1.65 (1.17-2.32)
>1 hour	30 (6%)	103 (20.5%)	133 (26.4%)		
<b>Eat fruits and vegetables (day)</b>					
≤3 times	153 (30.4%)	275 (54.7%)	428 (85.1%)	0.011*	1.78 (1.11-2.86)
>3 times	15 (3.0%)	60 (11.9%)	75 (14.9%)		
<b>Smoking</b>					
Yes	10 (2%)	20 (4%)	30 (6%)	1.000	1.00 (0.59-1.68)
No	158 (31.4%)	315 (62.6%)	473 (94%)		
<b>Smoking duration (Years)</b>					
>5 Years	2 (0.4%)	6 (1.2%)	8 (1.6%)	0.724	0.74 (0.22-2.49)
≤5 Years	166 (33%)	329 (65.4%)	495 (98.4%)		
<b>Body mass index (BMI)</b>					
Abnormal	67 (13.3%)	140 (27.8%)	207 (41.2%)	0.753	0.94 (0.73-1.22)
Normal	101 (20.1%)	195 (38.8%)	296 (58.8%)		

### Multivariate Analysis of Demographic and Lifestyle Factors with Mental Health Status

The results of multivariate analysis showed that employment status, gender, and age did not influence mental health in questions 1-20. On the other hand, the duration of physical activity and fruit and vegetable consumption significantly influenced mental health in questions 1-20. Variables tested multivariately must have a p-value ≤ 0.25. Physical activity and fruit and vegetable consumption each have a B (beta) value of -0.757 and -0.977. These values indicate a negative linear relationship between physical activity levels and fruit and vegetable intake and the incidence

of mental health disorders. From these results, it can be concluded that the higher the level of physical activity and the greater the intake of fruit and vegetables, the lower the possibility of mental health disorders. Thus, physical activity and consumption of fruits and vegetables are preventive or protective factors against mental health disorders. Respondents with physical activity more than 3 times a week have a chance of not experiencing mental health disorders by 0.46 compared to respondents with physical activity less than 3 times a week. Respondents with fruit and vegetable consumption more than 3 times a day have a chance of not experiencing mental health disorders by 0.48 compared to respondents with fruit and vegetable consumption less than 3 times a day. Meanwhile, the multivariate results also showed that the variables of employment status and smoking did not affect mental health status in questions 21-29. A more detailed explanation is shown in Table III below.

Table III. Multivariate Analysis of Demographic and Lifestyle Factors with Mental Health Status

Variables	B	P value	Exponen (B)/ Odds Ratio
<b>Mental Health Status (SRQ 1-20)</b>			
Job Status	-18.762	0.999	0.000
Sex	0.253	0.376	1.288
Age	-0.039	0.957	0.961
Duration of Physic Activity	-0.757	0.002*	0.469
Eating Fruits & Vegetables	-0.977	0.029*	0.488
<b>Mental Health Status (SRQ 21-29)</b>			
Job Status	18.721	0.999	0.000
Smoking	0.700	0.281	2.014

## Discussion

The SDGs are global and national commitments to improve the welfare of society, including 17 global goals and targets for 2030 declared by both developed and developing countries at the UN General Assembly in September 2015. The 17 goals are (1) No Poverty; (2) No Hunger; (3) Healthy and Prosperous Lives; (4) Quality Education; (5) Gender Equality; (6) Clean Water and Sanitation; (7) Clean and Affordable Energy; (8) Decent Work and Economic Growth; (9) Industry, Innovation and Infrastructure; (10) Reduced Inequalities; (11) Sustainable Cities and Settlements; (12) Responsible Consumption and Production; (13) Addressing Climate Change; (14) Ocean Ecosystems; (15) Land Ecosystems; (16) Peace, Justice and Resilient Institutions; (17) Partnerships for the Goals (Bapenas, 2023). Improving the mental health of the campus community is part of the third SDGS goal, which is to ensure healthy lives and improve the well-being of people of all ages. The mental health program is one of the healthy campus programs at the university. The Sustainable Development Goals (SDGs) is a global development agenda to end poverty, improve well-being, and protect the planet, through the achievement of 17 goals by 2030 (Tenaga *et al.*, 2022).

The results showed that mental health category No. 1-20 refers to anxiety and depression. In this category, around 40% of the total respondents experienced anxiety and depression, with 33.4% of them needing to be referred for further treatment. The results of this study are in line with the results of research at universities in Bangladesh which states that mental health disorders include "psychological distress" relating to the anxiety levels they reported. At the same time, depression (35%) and stress remained (20%) (Gamage & Herath, 2021). Furthermore, mental health in categories No. 21-29 refers to substance use, psychotic disorders, and PTSD. In this category, around 0.8% of respondents showed indications of drug use, 36% experienced psychotic disorders, and 35.4% experienced PTSD, of which 5.2% needed to be referred.

The most significant correlates of positive screening were older age and female gender (Odriozola-González *et al.*, 2020). Various studies have also shown that mental health disorders are more common among students than among workers (lecturers and educational staff) (Odriozola-González *et al.*, 2020; Aziz *et al.*, 2021). Different proportions are also seen in male and female students,

possibly due to different responses and perspectives in dealing with problems and pressures from the environment and campus (Rosemary Rizanna, 2019)

This study's results align with Dale et al.'s findings, which show that lifestyle factors such as physical activity are associated with better mental health (Dale *et al.*, 2021). Another study in Switzerland also stated that loneliness is associated with poor physical and mental health, as well as unhealthy lifestyles (Richard *et al.*, 2017). Other findings from Perret et al.'s research suggest that lifestyle affects levels of resilience, affecting mental health (Perret *et al.*, 2020).

Other studies have also shown that exercise, in general, is associated with better mood and improved quality of life. The impact of physical health on mental health is well-documented, with many psychological effects, such as self-esteem, cognitive function, mood, depression, and quality of life, remaining the focus of further research. These findings confirm the importance of exercise in improving outcomes for people with mental illness (Mahindru *et al.*, 2023). Lifestyle changes influence changes in mental health. Increased leisure time, activity, and decreased sleep duration are the lifestyle changes most closely associated with changes in mental health (Tanaka *et al.*, 2021).

The results showed that healthy lifestyle choices, such as increasing physical activity, not smoking, and maintaining a regular social rhythm, were associated with improved mental health over 1 year (Velten J *et al.*, 2018). Economic challenges, particularly a sense of despondency, contribute to the increase in mental health issues. Measures such as social distancing and other societal challenges further exacerbate depression within communities, which mostly led people to smoke as stress release during the health pandemic (Rosemary *et al.*, 2023)

Based on Dharmayani et al.'s research, fruit and vegetable intake is associated with mental health, including reducing the risk of depression (Dharmayani *et al.*, 2021). In healthy adults, vegetable consumption is also associated with psychological health (Tuck *et al.*, 2019). A Japanese study showed that higher fruit and vegetable consumption in middle age was associated with a lower risk of developing major depressive disorder later in life (Narita *et al.*, 2022). Higher fruit and vegetable consumption was also associated with lower levels of psychological distress (Richard *et al.*, 2015), and higher fish, fruit, and vegetable intake was also associated with lower incidence of mood disorders (Huang *et al.*, 2019).

There are many ways to overcome mental health problems, such as a) asking for help because we do not have to face everything alone, talking to people we trust and discussing what the problem is; and b) breathing slowly and long. This simple action will reduce anxiety levels; c) eating a healthy and balanced menu because the body needs the energy to overcome stress; d) taking time to relax and do activities that you like; e) exercise regularly; f) doing tasks regularly, not piling up work (Kemenkes RI, 2019).

Expanding access to services, promoting promotive efforts, and increasing public awareness of mental health disorders should be a priority direction of national mental health policy. By not always relying on medical treatment and focusing more on family and community-based care, the welfare of people with mental disorders can certainly be improved (Ridlo & Zein, 2018).

Mental health prevention and control efforts that can be carried out include advocacy and socialization to regents/mayors and DPRD's to make policies that favor the improvement of community mental health; optimizing the role of district/provincial health offices in mental health efforts; increasing the coverage of mental health services in health services; building effective partnerships with non-governmental organizations, professional organizations, the private sector, by forming community mental health teams in provinces, districts/cities; encouraging family and community empowerment in mental health efforts; and developing mental health information systems through various surveys and research (Kemenkes RI, 2019).

The key to successful prevention and treatment of mental health problems is to increase and optimize preventive, curative, and rehabilitative efforts. This can be done by encouraging university leaders to implement a healthy campus program. In addition, early detection of mental health problems in the campus environment needs to be intensified. The implementation of a healthy campus can be strengthened through regulations such as a healthy campus provost's decree.

In addition, partnerships with health centers and hospitals must be established for further treatment of campus residents with mental health problems.

### Conclusion

Factors such as gender, age, physical activity, and fruit and vegetable consumption were associated with mental health conditions (anxiety and depression). Job status is also associated with mental health problems both psychological and substance use, psychotic disorders, and PTSD. The variable length of physical activity affects mental health conditions. It is necessary to implement prevention and treatment programs for mental health disorders, such as anxiety and depression, especially among university students. This finding provides baseline data for developing a healthy campus, particularly for mental health programs. The program, e.g. increasing health literacy related to mental health, campaigns to increase physical activity, fruit and vegetable consumption, and avoiding smoking, are needed to help improve mental health status. In addition, advocate university leaders to create healthy campus regulations, provide mental health counseling, collaborate with the health office for further treatment, and ensure the program's sustainability.

### References

- Aziz, Z.A., Ayu, D.A., Bancin, F.M., Syara, S.G., Manalu, W.B., S, R.A., et al., 2021. Gambaran Kesehatan Mental Mahasiswa di Masa Pandemi Covid-19. *J. Dunia Kesmas* 10: 130-135. doi:10.33024/jdk.v10i1.3256
- Bapenas, 2023. Agenda 2030 untuk Pembangunan Berkelanjutan [WWW Document]. *Badan Perenc. Pembang. Nas*. URL <https://sdgs.bappenas.go.id/id/>
- Boxer, J., 2005. Promoting mental health. *Handb. Community Ment. Heal. Nurs.* 149-163. doi:10.5840/ncbq201616462
- Dale, R., Budimir, S., Probst, T., Stippl, P., & Pieh, C., 2021. Mental health during the covid-19 lockdown over the christmas period in austria and the effects of sociodemographic and lifestyle factors. *Int. J. Environ. Res. Public Health* 18. doi:10.3390/ijerph18073679
- De Hert, M., Correll, C.U., Bobes, J., Cetkovich-Bakmas, M., Cohen, D.A.N., Asai, I., et al., 2011. Physical illness in patients with severe mental disorders. I. Prevalence, impact of medications and disparities in health care. *World Psychiatry* 10: 52-77. doi:10.1002/j.2051-5545.2011.tb00014.x
- Dharmayani, P.N.A., Juergens, M., Allman-Farinelli, M., & Mirhshahi, S., 2021. Association between fruit and vegetable consumption and depression symptoms in young people and adults aged 15-45: A systematic review of cohort studies. *Int. J. Environ. Res. Public Health* 18: 1-22. doi:10.3390/ijerph18020780
- França, M.H., Barreto, S.M., Pereira, F.G., de Andrade, L.H.S.G., de Paiva, M.C.A., & Viana, M.C., 2017. Mental disorders and employment status in the São Paulo Metropolitan Area, Brazil: Gender differences and use of health services. *Cad. Saude Publica* 33: 1-14. doi:10.1590/0102-311X00154116
- Gamage, G.P., & Herath, H.M.C.J., 2021. Mental health of undergraduate distance learners: a cross-sectional study. *Asian Assoc. Open Univ. J.* 16: 271-286. doi:10.1108/AAOUJ-08-2021-0097
- Gloriabarbus, 2022. Hasil Survei I-NAMHS: Satu dari Tiga Remaja Indonesia Memiliki Masalah Kesehatan Mental [WWW Document]. *Univ. Gadjah Mada*. URL <https://ugm.ac.id/id/berita/23086-hasil-survei-i-namhs-satu-dari-tiga-remaja-indonesia-memiliki-masalah-kesehatan-mental/>
- Huang, P., O'Keefe, M., Elia, C., Karamanos, A., Goff, L.M., Maynard, M., et al., 2019. Fruit and vegetable consumption and mental health across adolescence: Evidence from a diverse urban British cohort study. *Int. J. Behav. Nutr. Phys. Act.* 16. doi:10.1186/s12966-019-0780-y
- Idris, H., & Hasri, S.N., 2023. Factors Associated with the Symptom of Depression among Elderly in Indonesian Urban Areas. *J. Psikol.* 50: 45. doi:10.22146/jpsi.72406
- Kalra, G., Christodoulou, G., Jenkins, R., Tsipas, V., Christodoulou, N., Lecic-Tosevski, D., et al., 2012. Mental health promotion: Guidance and strategies. *Eur. Psychiatry* 27: 81-86. doi:10.1016/j.eurpsy.2011.10.001
- Kemkes RI, 2019. Pedoman Teknis Penyelenggaraan Kampus Sehat. Jakarta, Indonesia.
- Kemkes RI, 2018. Laporan Riskesdas 2018, Kementerian Kesehatan RI. Badan Penelitian dan Pengembangan Kesehatan (Balitbangkes), Jakarta, Indonesia.
- KEMENKES RI, 2019. Situasi Kesehatan Jiwa Di Indonesia. *InfoDATIN*.

- Kim, Y.K., Yu, M., Moon, S.S., Maleku, A., Um, M.Y., & Tefera, G.M., 2022. Sociodemographic characteristics, preventive behaviors, and the mental health status of social work students in the US during the COVID-19 pandemic. *Soc. Work Ment. Health* 20: 578-603. doi:10.1080/15332985.2022.2047870
- Kumparan, 2023. 5 Kasus Bunuh Diri Mahasiswa Yogya, Pakar: Buntut Gangguan Mental Akibat Pandemi | kumparan.com [WWW Document]. URL <https://kumparan.com/pandangan-jogja/5-kasus-bunuh-diri-mahasiswa-yogya-pakar-buntut-gangguan-mental-akibat-pandemi-21KObLiErHc> (accessed 12.26.23).
- Liu, Y., Xu, Y., Yang, X., Miao, G., Wu, Y., & Yang, S., 2023. The prevalence of anxiety and its key influencing factors among the elderly in China. *Front. Psychiatry* 14: 1-11. doi:10.3389/fpsy.2023.1038049
- Mahindru, A., Patil, P., & Agrawal, V., 2023. Role of Physical Activity on Mental Health and Well-Being: A Review. *Cureus* 15: 1-7. doi:10.7759/cureus.33475
- Narita, Z., Nozaki, S., Shikimoto, R., Hori, H., Kim, Y., Mimura, M., et al., 2022. Association between vegetable, fruit, and flavonoid-rich fruit consumption in midlife and major depressive disorder in later life: the JPHC Saku Mental Health Study. *Transl. Psychiatry* 12: 1-6. doi:10.1038/s41398-022-02166-8
- Odrozola-González, P., Planchuelo-Gómez, Á., Irurtia, M.J., & de Luis-García, R., 2020. Psychological effects of the COVID-19 outbreak and lockdown among students and workers of a Spanish university. *Psychiatry Res.* 290: 113108. doi:10.1016/j.psychres.2020.113108
- Perret, J.L., Best, C.O., Coe, J.B., Greer, A.L., Khosa, D.K., & Jones-Bitton, A., 2020. Association of demographic, career, and lifestyle factors with resilience and association of resilience with mental health outcomes in veterinarians in Canada. *J. Am. Vet. Med. Assoc.* 257: 1057-1068. doi:10.2460/JAVMA.2020.257.10.1057
- Razzak, A.N., Orlando, N.A., Angelette, A., Kumar, V., Anderson, D.J., Hasoon, J., et al., 2022. Rare Mental Health Disorders Affecting Urologic Care: A Comprehensive Review. *Heal. Psychol. Res.* 10: 1-14. doi:10.52965/001c.38674
- Richard, A., Rohrmann, S., Vandeleur, C.L., Mohler-Kuo, M., & Eichholzer, M., 2015. Associations between fruit and vegetable consumption and psychological distress: Results from a population-based study. *BMC Psychiatry* 15: 1-8. doi:10.1186/s12888-015-0597-4
- Richard, A., Rohrmann, S., Vandeleur, C.L., Schmid, M., Barth, J., & Eichholzer, M., 2017. Loneliness is adversely associated with physical and mental health and lifestyle factors: Results from a Swiss national survey. *PLoS One* 12: 1-18. doi:10.1371/journal.pone.0181442
- Ridlo, I.A., & Zein, R.A., 2018. Arah Kebijakan Kesehatan Mental: Tren Global dan Nasional Serta Tantangan Aktual. *Bul. Penelit. Kesehat.* 46: 45-52. doi:10.22435/bpk.v46i1.56
- Rokom Kemenkes, 2021. Kemenkes Beberkan Masalah Permasalahan Kesehatan Jiwa di Indonesia [WWW Document]. *Sehat Negeriku Sehatlah Bangsa*, Kementerian. *Kesehat. RI*. URL <https://sehatnegeriku.kemkes.go.id/baca/rilis-media/20211007/1338675/kemenkes-beberkan-masalah-permasalahan-kesehatan-jiwa-di-indonesia/> (accessed 9.19.23).
- Rosemary, R., Ciptaningtyas, R., Usman, S., Ilmu Sosial dan Politik, F., Syiah Kuala, U., Teuku Nyak Arief, J., et al., 2023. Food and cigarettes expenses during COVID-19 pandemic on diet quality in Jakarta and surroundings. *AcTion Aceh Nutr. J.* 8: 278-287. doi:10.30867/ACTION.V8I2.927
- Rosemary, R., Pertiwi, P., & Denna, I., 2019. #StayAlive - Inside Indonesia: The peoples and cultures of Indonesia [WWW Document]. *Insid. Indones.* URL <https://www.insideindonesia.org/editions/edition-134-oct-dec-2018/stayalive-2> (accessed 11.13.23).
- Singh, V., Kumar, A., & Gupta, S., 2022. Mental Health Prevention and Promotion—A Narrative Review. *Front. Psychiatry* 13: 1-17. doi:10.3389/fpsy.2022.898009
- Sugiyono, 2019. *Metode Penelitian Kuantitatif*. Penerbit Alfabeta, Bandung.
- Swarjana, I.K., 2016. *Metodologi Penelitian Kesehatan* (Ed. Revisi). ANDI, Yogyakarta.
- Tanaka, K., Tahara, M., Mashizume, Y., & Takahashi, K., 2021. Effects of lifestyle changes on the mental health of healthcare workers with different sense of coherence levels in the era of COVID-19 pandemic. *Int. J. Environ. Res. Public Health* 18: 1-11. doi:10.3390/ijerph18062801
- Tenaga, M., Dan, K., Republik, T., Tenaga, K., Dan, K., & Fungsi, D.A.N., 2022. Perpres No 111: Pelaksanaan Pencapaian Tujuan Pembangunan Berkelanjutan.
- Tuck, N.J., Farrow, C., & Thomas, J.M., 2019. Assessing the effects of vegetable consumption on the psychological health of healthy adults: a systematic review of prospective research. *Am. J.*

*Clin. Nutr.* 110: 196-211. doi:10.1093/ajcn/nqz080

Velten J, Bieda A, Scholten S, Wannemüller A, & Margraf J, 2018. Lifestyle choices and mental health: A longitudinal survey with German and Chinese students. *BMC Public Health* [revista en Internet] 2018 [acceso 2 de julio de 2021]; 18(1): 1-15. 1-15.

WHO, 2022. Mental health [WWW Document]. *World Heal. Organ.* URL <https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response> (accessed 9.19.23).

Yoo, H., & Kim, N., 2020. Factors associated with lifestyle habits and mental health problems in Korean adolescents: The Korea national health and nutrition examination survey 2017-2018. *Int. J. Environ. Res. Public Health* 17: 1-15. doi:10.3390/ijerph17249418

Zaman, R., Hankir, A., & Jemni, M., 2019. Lifestyle factors and mental health. *Psychiatr. Danub.* 31: 217-220.

## Tahap 7: Letter of Acceptance : 28 Desember 2023

Jurnal Promkes <jurnal.promkes@gmail.com>

28 Desember 2023 pukul 11.46

Kepada: Heni Trisnowati <heni.trisnowati@pascakesmas.uad.ac.id>

Dear Author,

Kami telah menerima dokumen penerimaan atas naskah Anda

Berikut kami lampirkan Letter of Acceptance



JURNAL PROMKES  
Jurnal Resmi Fakultas Kesehatan Masyarakat  
Kampus C UIN Ar-Raniry Surabaya  
Telp. (031) 8329441, Fax. 031-8324618  
Website: <https://jurnal.uin-ar.ac.id/promkes/>  
Email: [jurnal.promkes@gmail.com](mailto:jurnal.promkes@gmail.com) / [promkes@fkm.uin-ar.ac.id](mailto:promkes@fkm.uin-ar.ac.id)

### LETTER OF ACCEPTANCE (LoA)

Menyatakan bahwa artikel yang berjudul:

Opportunity for a Healthy Campus Program as a Sustainable  
Development Goal: Assessing Lifestyle Factor and Mental Health  
Status

Nama penulis : Heni Trisnowati<sup>\*)</sup>, Nika Yulianti Fitri, Rizanna Rosemary, Ariyanto  
Nugroho

telah diterima sebagai salah satu artikel yang akan dimuat dalam Jurnal Promkes: The  
Indonesian Journal of Health Promotion and Health Education Volume 12 Special Issue  
1 Januari tahun 2024.

Surabaya, 28 Desember 2023  
Pimpinan Redaksi



Oedjo Soediharto, dr., M.PH., M.A., Ph.D

<sup>\*)</sup> Corresponding author



Semoga dapat digunakan dengan baik

Terima kasih atas kontribusinya



Virus-free. [www.avast.com](http://www.avast.com)

[Kutipan teks disembunyikan]

**3. Heni Trisnowati.pdf**  
208K

## Tahap 8. Artikel Terbit 26 Januari 2024

Jurnal Promkes <jurnal.promkes@gmail.com>

23 Januari 2024 pukul 11.30

Kepada: Heni Trisnowati <heni.trisnowati@pascakesmas.uad.ac.id>

Dear Author,

Melalui email ini kami lampirkan galley proof atas naskah Anda

**Silakan dicek khususnya di bagian nama dan afiliasi**

Jika ada perubahan atau revisi mohon membalas pesan ini dengan menyertakan bagian yang harus diubah

**Konfirmasi kami tunggu paling lambat Kamis, 25 Januari 2024**

**Jika melewati batas waktu tersebut kami anggap tidak ada perubahan, sebab naskah akan dipublikasikan di tanggal 26 Januari 2024**

Terima kasih



Virus-free. [www.avast.com](http://www.avast.com)

[Kutipan teks disembunyikan]

**3. HENI TRISNOWATI\_20-28.pdf**  
312K

Heni Trisnowati <heni.trisnowati@pascakesmas.uad.ac.id>

24 Januari 2024 pukul 08.55

Kepada: Jurnal Promkes <jurnal.promkes@gmail.com>

Dear Editor Jurnal Promkes,

Afiliasi untuk semua penulis sudah benar

Salam sehat,  
**Dr. Heni Trisnowati, SKM., MPH**  
Postgraduate Program of Public Health  
Faculty of Public Health Universitas Ahmad Dahlan (UAD)  
Jl. Prof. DR. Soepomo Sh, Umbulharjo Yogyakarta Indonesia

[Kutipan teks disembunyikan]

