The Correlation of Health Literacy Related to Health-Promoting University towards Healthy Behavior Among The Academic Community

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ABSTRACT

Background: *Health is a substantial factor in creating distinguished human resources. University, as a prominent institution in society, has a role in creating distinguished human resources that could be realized with the campus policy concerned with health issues. Universitas Jenderal Soedirman (UNSOED) has not made a specific health Promoting University (HPU) policy or a healthy campus program. The importance of health problem surveillance in the case of the academic community –and its determinant–and its result could be fundamental, either in the decision-making or policy planning related to the creation of a healthy campus at UNSOED. The study intends to analyze the correlation between health literacy and the attitude of HPU towards healthy behavior among the academic community at UNSOED.*

Method: *The study uses a quantitative method with a cross-sectional. The data acquisition was carried out by online sampling from August until September 2021. A total of 238 respondents were involved: lecturers, academic staff, and students from 12 faculties at UNSOED. The data respondents were analyzed with chi-square.*

Results: *The majority of respondents were not infected with a chronic disease, were immune from COVID-19 and had no allergies either. Most of the respondents have moderate health literacy, supporting the policy about HPU, but most still lack consciousness to apply healthy behavior on campus. The correlation between health literacy and healthy behavior in the impacted group could only be found in the UNSOED lecturer (p-value 0.034), instead of the other groups. There is no impacted relation between the attitude and the healthy behavior of all respondent group. It is necessary to develop a health promotion university program that follows the academic community's needs.*

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INTRODUCTION

Lifestyle and eating patterns affect society's increased risk of non-communicable diseases (NCD). Non-Communicable Diseases are now threatening younger age groups, including students groups such as university students. The Indonesian Basic Health Research in 2018 showed that the prevalence of stroke in the age group of >15 years was 10.9%, and diabetes mellitus was 2%. For health problems in the age group of >18 years, such as obesity, the prevalence was 21.8%. This percentage was higher than in 2013, which was 14.8%. The proportion of less physical activity in the age group of >10 years is 33.5%, and 95.5% of the Indonesian population aged >5 years consumes less than 5 servings of vegetables/fruits per day.[1] National Centre of Statistics in 2021 showed that the percentage of smokers aged >15 years in Indonesia has increased from 28.69% to 28.96% in 2020.[2]

The academic community spends a lot of time on campus. Many of the targets in works or studies make them forget to practice healthy behavior while on campus, such as an increasingly sedentary lifestyle, where people spend a lot of time sitting and working with gadgets. The academic community tends to exercise less because they don't have enough time, are too tired after work, and so on. Insufficient nutrition also contributes to increasing obesity and other health problem. Likewise, low control of no-smoking areas causes some academic communities still smoke on campus.

The World Health Organization (WHO) defines health as not merely the absence of disease or weakness, but a state of physical, mental, and social well-being. Social practices and conditions (such as lifestyle, living and working situations, environmental characteristics, neighborhood characteristics, poverty, environmental pollution), stressful circumstances, socioeconomic status

(income, education, and employment) etc. affect the health of individuals, groups and communities. [3] Health is a key factor in realizing quality human resources, this makes health a major component in measuring the Human Development Index, in addition to education and the economy.[4] Higher education as a leading institution in society has a role in realizing intelligent, productive, innovative, and competitive human resources. These are easier to achieve when individuals have physical, mental, and social well-being. To realize this well-being, a health-oriented policy is required, so that it can encourage and make healthy behavior a daily norm and culture in the academic community.

Healthy behavior is defined as an individual action to improve and maintain health. Behavior can be realized by the presence of knowledge, attitudes, beliefs, values, motivation, social support, facilities, and access that support behavior. Self-efficacy affects feelings, thoughts and actions. Building self-efficacy, therefore, becomes an integral part of changing health behavior.[5] Attitudes, norms and self-efficacy have causal effects on health-related intentions and behaviors.[6] The theory of health behavior, including Health Belief Model I (HBM) and the Theory of Planned Behavior (TPB), explains the relationship between attitudes, beliefs, social factors, psychological context, subjective norms regarding the behavior, and perceived control over the behavior, and demographics toward healthy behavior.[7,8,9]

University is an ecosystem for a productive population and a forum for the education of the youth generation that potentially produces agents of change for the health sector which are considered capable of improving public health. Since 1998, WHO has introduced the concept of Health Promoting University as an environment-based health promotion effort that applies a socio-ecological approach.[10] Many countries responded to this concept by forming a higher education network to support the achievement of these efforts, including the ASEAN University Network (AUN). Adaptating the WHO concept, then AUN began to develop the concept of a 'Healthy Campus' or Healthy University in 2017.[11] A healthy campus is considered to be able to influence public health through efforts to create a healthy and safe environment, implementing a culture of healthy lifestyle and disease prevention health services.[12] The healthy university was developed to foster multidisciplinary knowledge and commitment to healthy living and health promotion across all schools and departments.[13]

Universitas Jenderal Soedirman (UNSOED) is one of the leading tertiary institutions in Central Java with more than 21,000 active students per year, and more than 2,000 teaching staff and educational staff. Until now, there has not been a specific policy for implementing a health-promoting university program at UNSOED. In addition, it is necessary to map health problems and their determinants that can be used as basic evidence for decision-making and designing policies related to a healthy campus at UNSOED.

This study aims to initiate an assessment to obtain an overview of the health status of the academic community and their behavior-related health on campus. The results are expected to be a reference for decision-making and encourage the implementation of a health-promoting university (HPU) program at UNSOED.

METHOD

This study used a quantitative approach with a cross-sectional design. It involved 238 respondents, which included students, lecturers, and staff. The sample was taken randomly. The inclusion criteria applied to students who were the only students involved in offline learning included in the study. The data was collected using an online questionnaire from August to September 2021 via a Google form through campus social media. Instruments were validated in another university with similar characteristics. Variables measured in this study are demographic characteristics, medical history, health literacy which includes knowledge and attitude, and health behavior. Health literacy was assessed by 29 questions, attitudes by 28 related questions, and health behavior measured by 16 related questions. Detailed questions are explained in the result section. These questionnaires are adopted from the previous research conducted at Universitas Gadjah Mada regarding the relationship between health literacy and attitudes of the health-promoting university towards the health behavior of non-health cluster students[14]. Health literacy and health behavior are categorized using internal distribution statistic categorizes (mean and median). Chi-square statistical test was used to analyze the correlation between health literacy and health behavior. The research was ethically approved by the Ethics Commission of the Faculty of Health Sciences, Universitas Jenderal Soedirman with ethical clearance number 502/EC/KEPK/VII/2021.

RESULTS AND DISCUSSION

This study involved 238 academics community consisting of lecturers, campus staff, and students from 12 faculties at Universitas Jenderal Soedirman. The results obtained demographic data, medical history, health literacy, attitudes about Health Promoting University (HPU), and health behavior on campus. These data are presented in the following tables.

Table 1. Characteristics of respondents

Group	Variable	n	%
Student	**Gender**		
	Male	48	32.4
	Female	100	67.6
	Age		
	19-21	91	61.5
	21-24	54	36.5
	≥25	3	2.0
	Pocket Money		
	≤ 350,000	29	19.6
	350,100 – 1,000,000	78	52.7
	1,000,100 – 2,000,000	32	21.6
	2,000,100 – 3,000,000	2	1.4
	> 3,000,000	7	4.7
Lecturer	**Gender**		
	Male	20	42.6
	Female	27	57.4
	Age (years)		
	26 – 35	12	25.5
	36 – 45	13	27.7
	46 – 59	14	29.8
	≥ 60	8	17.0
	Income		
	1–2 million	1	2.1
	2-3 million	41	87.2
	>3 million	5	10.6
Academic Staff	**Gender**		
	Male	26	60.5
	Female	17	39.5
	Age (years)		
	26 – 35	5	11.6
	36 – 45	20	46.5
	46 – 59	18	41.9
	> 60	0	0.0
	Income		
	≤ 350,000	1	2.1
	1 – 2 million	13	87.2
	2 – 3 million	20	10.6
	> 3 million	9	20.9

Table 1 shows that most of the respondents were female (53.8%), students aged 19-21 years (61.5%), lecturers aged 46-59 years (29.8%), and campus staff aged 36-45 years (46.5%). Most students have pocket money of Rp 350.000 – Rp 1.000.000 per month (52.7%), lecturers earn >Rp 2.000.000 – Rp 3.000.000 per month (87.2%), and academic staff earns Rp 1.000.000 – Rp 2.000.000 per month (87.2%).

Respondent's medical history was assessed from chronic disease status, COVID-19, and history of allergies (Table 2) Study showed that most of the respondents had chronic diseases (53.3%). Chronic disease is an illness that is not contagious, usually is long in duration, progresses slowly, and is typically a result of genetics, environment, or poor lifestyle.[15] History of chronic disease in this study assessed several types of diseases such as heart disease,

Table 2. Medical history

Variable	Student (n = 148)		Lecturer (t=47)		Academic staff (n= 43)		Total (n = 238)	
	n	%	n	%	n	%	n	%
Chronic Disease								
Not have	70	47.3	21	44.7	20	46.5	111	46.7
Have	78	52.7	26	55.3	23	53.5	127	53.3
Type of chronic disease								
Heart disease	3	2.0	1	2.1	0	0	4	1.7
Stroke	1	0.7	0	0	0	0	1	0.4
Diabetes mellitus	0	0	4	8.5	4	9.3	8	3.4
Cancer	0	0	0	0	2	4.7	2	0.8
COPD	0	0	0	0	0	0	0	0
Hypertension	6	4.1	7	14.9	3	7.0	16	6.7
Cholesterol	4	2.7	5	10.6	5	11.6	14	5.9
Hepatitis	0	0	3	6.4	0	0	0	0
Tuberculosis	2	1.4	1	2.1	2	4.7	5	2.1
COVID-19								
Infected	19	12.8	4	8.5	7	16.3	30	12.6
No infected	129	87.2	43	91.5	36	83.7	208	87.4
Having Allergy								
Have	51	34.5	15	31.9	11	25.6	77	32.4
Not have	97	65.6	32	68.1	32	74.4	161	67.6

stroke, cancer, type 2 DM, Chronic Obstructive Pulmonary Disease (COPD), hypertension, cholesterol, hepatitis, and tuberculosis. Results show that of the 238 respondents, 16 of them had a history of hypertension (6.7%), which is the most suffered by lecturers; cholesterol (5.8%), which is the most suffered by lecturers; had a history of DM type 2 (3.4%); had a history of tuberculosis (2.1%); had a history of heart disease (1.7%), and 1 of the students reported history of stroke (0.4%). Adults and the elderly have been historically associated with a higher risk for chronic disease. Nevertheless, a rise in chronic disease prevalence is beginning to be seen in the younger population.[16]

Most of the respondents had never been infected with COVID-19 when this study was conducted (87.4%). Most of them did not have allergies (67.6%). Respondents with a history of allergies admitted to being allergic to air/weather. Allergies arise in a person because of a reaction to changes in certain materials in the daily environment that do not occur in most people. For example, shrimp or medicine that previously did not cause any reaction at one time causes hives, eczema, and so on. Many different factors influence the development of allergic diseases. Several environmental triggers were identified that increase susceptibility to allergic disease: common behaviors and determinants that affect the subject's microbiome and external microbial environment, influencing susceptibility to allergic disease; allergens that are associated with the development of atopy; exposure to air pollution which not only affects lung function but also contributes to the immune response. Collectively, these exposures overlap with each other to influence disease onset or disease severity.[17]

The health literacy assessed in this study includes information seeking, understanding, and using information. Obtained by respondents regarding healthy canteens on campus, sports facilities, parking lots and bicycle stations, campus health services, consulting academic supervisors, green building and environment, smoking, physical activity, maintaining weight body, mental health, and health maintenance. The variable of health literacy showing the question about 'finding information on health services on campus' is considered 'very difficult' by 23 respondents. 'Finding a healthy canteen at the faculty' was assessed as 'difficult' by 103 respondents. ‘Finding information about healthy activities such as exercise and healthy nutritious food' was assessed as 'easy' by 166 respondents. ‘Finding campus bicycle stations and parking' was assessed as 'very easy' by 67 respondents. The question about health literacy is presented in sub table 3.1

Table 3. Distribution of questions about health literacy, attitude, and healthy behavior

3.1 Question-related health literacy													
No	**Health literacy**	**Student (n = 148)**				**Lecturer (n=47)**				**Academic staff (n= 43)**			
		Very Difficult	**Difficult**	**Easy**	**Very Easy**	**Very Difficult**	**Difficult**	**Easy**	**Very Easy**	**Very Difficult**	**Difficult**	**Easy**	**Very Easy**
1	Find out a healthy canteen in your faculty	13	70	59	6	6	17	22	2	3	16	22	2
2	Understand the advantages and disadvantages of a canteen	7	38	86	17	2	3	36	6	2	11	26	4
3	Utilize a healthy canteen in your faculty	12	53	70	13	4	16	20	7	3	11	27	2
4	Decided to use a healthy canteen in your faculty	12	39	83	14	5	10	22	10	1	12	25	5
5	Found information about sports facilities on campus	4	31	90	23	5	7	26	9	2	6	30	5
6	Assess the advantages and disadvantages of having campus sports facilities	1	27	98	22	3	5	29	10	2	7	31	3
7	Utilize campus sports facilities	7	36	83	22	4	9	26	8	2	8	29	4
8	Looking for where the campus sports facilities are	9	23	89	27	4	7	23	13	0	5	33	5
9	Find out campus bike parking and stations on your faculty	2	25	80	41	3	14	18	12	0	7	32	4
10	Use parking lots and bike stations at your faculty	6	29	73	40	5	11	22	9	0	9	31	3
11	Found information about health services on campus	17	70	57	4	3	17	21	6	3	16	24	0
12	Assess the advantages and disadvantages of access to health services	10	59	71	8	3	11	21	12	3	14	25	1
13	Access to campus health services	15	66	62	5	1	17	22	7	4	17	21	1
14	Decide to use campus health services	11	65	68	4	1	18	21	7	3	15	23	2
15	Understand the functions and benefits of student consultation with academic supervisor	2	28	94	24	3	1	25	18	1	6	33	3
16	Access to student consultation with academic supervisors	1	30	87	30	2	1	30	14	2	8	30	3
17	Understand what is meant by Campus buildings and greening	1	26	107	14	3	4	23	17	1	9	28	5
18	Utilize campus buildings and greenery	2	33	95	18	4	8	25	10	1	9	30	3
19	Assess the advantages and disadvantages of green buildings and campus	0	28	101	19	3	5	24	15	1	10	28	4
20	Found information on how to manage unhealthy behaviors like smoking and lack of exercise	9	31	90	18	5	10	21	11	2	13	23	5
21	Found information on how to manage mental health, for example, stress or depression	14	58	69	7	4	17	20	6	4	18	19	2
22	Found information on how to prevent or manage a condition such as being overweight	13	68	57	10	4	14	22	7	3	17	19	4
23	Assess if health information in the media can be trusted (eg: Tv, internet, etc)	7	43	81	17	2	13	28	4	2	12	25	4
24	Found information about healthy activities like exercise, healthy food and nutrition	3	25	107	13	4	5	29	9	1	7	30	5
25	Found information about activities that are good for your mental health (eg: meditation, exercise, walking, yoga, ets)	8	38	90	12	3	9	30	5	1	11	25	6
26	Find out information on how you make your environment healthier (eg: reducing pollution and noise, creating a green environment, etc)	6	43	87	12	3	12	25	7	3	13	22	5
27	Assess when you need to go to doctor	9	50	77	12	4	9	25	9	1	11	27	4
28	Assess daily activities that affect your health? (eg: eating and drinking behavior, exercise, etc.)	6	48	80	14	2	7	26	12	1	10	27	5
29	Decide to improve your health	4	41	80	0	1	10	26	10	1	9	29	4
3.2 Question-related attitude about HPU													
No	**Attitude about HPU**	**Student (n = 148)**				**Lecturer (n=47)**				**Academic staff (n= 43)**			
		Strongly Disagree	**Disagree**	**Agree**	**Strongly Agree**	**Strongly Disagree**	**Disagree**	**Agree**	**Strongly Agree**	**Strongly Disagree**	**Disagree**	**Agree**	**Strongly Agree**
1	I will choose to eat vegetables instead of fried ones.	3	26	79	40	0	2	16	29	2	2	15	24
2	In my opinion, the campus should provide a healthy canteen for students.	2	26	120	148	0	0	3	44	0	0	6	37
3	I like to eat instant noodles in the campus canteen because it's practical and cheap.	23	56	43	26	2	13	15	17	1	12	19	11
4	With a healthy canteen, I will choose to eat on campus compared to off campus.	0	16	55	77	1	0	17	29	1	1	12	29
5	I will wash my hands before eating.	0	2	26	120	0	0	5	42	0	0	5	38
6	I prefer to drink fruit juices than soft drinks	1	5	52	90	0	0	9	38	1	2	9	31
7	With a healthy canteen, I will invite friends to eat at the campus canteen.	0	12	58	78	0	2	13	32	0	1	16	26
8	In think campus should provide adequate sports facilities for all students.	0	3	20	125	0	0	6	41	0	0	12	31
9	I will do regular exercise for at least 30 minutes a day.	2	29	84	33	0	7	22	18	0	1	16	26
10	I think, each department should make a special schedule to exercise together and it is mandatory.	5	29	58	56	2	10	15	20	0	3	18	22
11	I will avoid disease if I exercise regularly.	0	5	58	85	0	1	15	31	1	0	13	29
12	With proper sports facilities, I will be more diligent to exercise on campus	1	14	67	66	0	7	15	25	0	1	16	26
13	I like the parking area that is far from the office/classroom.	35	69	31	13	12	14	13	8	6	16	15	6
14	I will use of campus bicycles as one of the physical activities.	4	29	69	46	1	18	17	11	0	6	25	12

15	I think, there should be an activity every month to ride campus bicycles together.	8	20	66	54	0	9	20	18	0	1	26	16
16	With strict regulations regarding parking lots and bicycle stations, I will support and comply with these rules.	3	7	71	67	0	3	23	21	0	0	21	22
17	Each faculty should have a health service unit.	0	5	26	117	0	2	13	32	0	2	10	31
18	In my opinion, the campus should facilitate access to health services for academics (students, lecturers, and academic staff).	0	2	32	114	0	0	7	40	0	0	8	35
19	With easy access to health services on campus, I will have regular health checks.	0	4	51	93	0	2	13	32	0	0	16	27
20	With access to adequate campus services, I prefer to access health on campus rather than off campus.	0	5	44	99	0	2	10	35	0	1	16	26
21	In my opinion, the campus should do greening regularly.	0	2	46	100	0	0	5	42	0	0	15	28
22	Having green open spaces can increase my motivation to study/work and discuss in the campus environment.	0	2	44	102	0	0	11	36	0	0	14	29
23	I'd rather use the stairs than the elevator.	5	49	56	38	2	9	19	17	2	0	28	13
24	With the campus greening, I will support and participate in maintaining the campus environment.	0	2	52	94	0	0	10	37	0	0	14	29
25	With the health-based campus building, I will be more comfortable studying/working inside and outside the classroom.	0	2	56	90	0	0	8	39	0	0	15	28
26	I think, students should actively consult with their supervisors in academic and non-academic matters.	0	3	54	91	0	0	11	36	0	0	16	27
27	With a good relationship with the academic supervisor, students will avoid stress when consulting.	0	4	55	89	0	0	12	35	0	0	13	30
28	I will support the implementation of Health Promoting University at Universitas Jenderal Soedirman.	1	2	44	101	0	0	8	39	0	0	9	34

3.3 Question-related healthy behavior on campus

No	Healthy Behavior	Student (n = 148)					Lecturer (n=47)					Academic staff (n= 43)				
		No			Yes		No			Yes		No			Yes	
1	I had screening or medical check up before being accepted as a student/ lecturer/ academic staff	13			135		4			43		8			35	
		Never	Rarely	Sometimes	Often	Always	Never	Rarely	Sometimes	Often	Always	Never	Rarely	Sometimes	Often	Always
2	In last 30 days, I used campus sports facilities	98	26	18	6	0	24	9	12	2	0	17	7	16	2	1
3	In last 30 days, I received health screening/nutrition consultation	118	23	6	1	0	37	6	4	0	0	32	7	2	2	0
4	In last 30 days, I received physical activity consultation/education of NCD	114	23	9	2	0	33	9	4	0	1	32	7	2	2	0
5	Obtaining health promotion to control smoking behavior	102	25	18	3	0	36	5	5	1	0	31	8	3	1	0
6	Undertake health/social counselling	95	27	22	4	0	34	7	6	0	0	33	5	5	0	0
7	Obtain health promotion for work-life balance or study-life balance.	86	32	23	5	2	30	10	7	0	0	34	6	2	1	0
8	Get involved in social activities such as student/lecturer groups	42	33	37	31	5	13	13	8	6	7	23	12	3	5	0
9	Smoking on campus	132	6	7	3	0	44	0	3	0	0	34	5	3	1	0
10	Consuming alcohol, drugs, and other addictive substances	146	1	1	0	0	46	0	1	0	0	39	2	2	0	0
11	Involved in violence, brawls, bullying, and sexual harassment (perpetrator/victim).	144	3	0	0	1	46	0	1	0	0	40	1	2	0	0
12	Adherence to wearing a helmet/seat belt while driving	16	23	13	27	69	4	9	8	8	21	7	13	5	2	16
13	Realizing and maintaining a clean and green campus environment	21	26	26	39	35	5	10	7	11	14	6	15	5	4	13
14	Access healthy nutritious food available in the campus canteen	47	30	36	18	17	20	7	8	7	5	9	17	8	6	3
15	Access campus health services when sick	88	28	15	11	6	25	9	6	3	4	21	14	4	3	1
16	parking the vehicle remotely from the classroom/office	55	47	23	19	4	16	17	9	3	2	10	20	7	3	3

Attitudes towards the health-promoting university in this study include the assessment of the consumption of nutritious food, healthy canteens, campus sports facilities, distance to parking lots, campus bicycle facilities, physical activity, access to campus health services center, green building and environment, academics consultation, and implementation of HPU in UNSOED. The responses were 'agree' and 'strongly agree' by most respondents answering the question if 'the campus should provide a healthy canteen for students'. The most 'disagree' and 'strongly disagree' responses were 'I like the parking area that is far from the office/lecture building' The attitudes towards the statement 'I will support the implementation of Health Promoting University' are most of the respondents stated 'strongly agree' by 174 respondents. The question about health literacy is presented in sub table 3.2.

Healthy behavior variables in this study include health screening, use of sports facilities and campus fitness programs, utilization of health services and counseling, obtaining smoking-related health promotion, work-life balance, consuming drugs and alcohol, smoking behavior, safe driving behavior, access to nutritious food at healthy canteens, maintenance of a healthy and green environment, and vehicle parking behavior. Based on the respondents' answers, the rarest behavior that has never been carried out on campus is 'Consuming alcohol, drugs, and other addictive substances' by 231 respondents, the behavior that is most 'rarely' is 'parking the vehicle remotely from the classroom/office' by 84 respondents, the behavior that is 'sometimes' carried out is 'access healthy nutritious food available in the campus canteen' by 52 respondents, the behavior that is most 'frequent' carried out is 'realizing and maintaining a clean and green campus environment' by 54 respondents, and the behavior that is always carried out is 'Adherence to wearing a helmet/seat belt while driving' by 106 respondents. Most of the academic community members have never been involved in violence, brawls, bullying and sexual harassment, either as perpetrators or victims. The question about health literacy is presented in sub table 3.3.

This study showed the frequency distribution of health literacy, attitudes towards HPU, and healthy behavior on campus. Data were categorized by 'high' for literacy, 'very supportive' for attitude and 'good' for the behavior if the value obtained is> 75. The category of 'moderate' for literacy, attitude and behavior is if the score is 60-75. The category of 'low' or 'less' is if the score is <60. Most of the students have 'moderate' health literacy (70,9%), most of the lecturers have 'moderate' health literacy (48,9%), and most of the academic staff have moderate health literacy (62,8%). Regarding the attitude, most of the respondents had a very supportive attitude towards a health-promoting university: students (86.5%), lecturers (91.5%), and academic staff (90.7%). Meanwhile, on the behavior variable, most of the respondents were still low in healthy behavior on campus: students (84.5%), lecturers (83.0%) and academic staff (88.4%). The distribution of health literacy, attitude and health behavior is presented in table 4.

Health behavior is all actions taken by individuals that can affect health.[8] This includes individual efforts to improve their health, such as consuming a balanced nutritious diet, regular physical activity, and avoiding smoking, alcohol, and risky sexual behavior. Health behavior is motivated by various factors. According to Green, there are three determinants of individual behavior, namely predisposing factors, enabling factors, and reinforcing factors. Predisposing factors include knowledge, attitudes, beliefs, perceptions, values, and motivation. Supporting factors include skills and resources to carry out health behaviors, including costs, distance, and availability of infrastructure. Meanwhile, the driving factors include the attitudes and behavior of health workers, community leaders, religious leaders, parents, or other officers who become references for community behavior.[18]

Table 4. Health literacy, attitude about hp, and health behavior on campus

Variable	Category	Student (n = 148)		Lecturer (n=47)		Academic staff (n= 43)		Total (n = 238)	
		n	%	n	%	n	%	n	%
Health Literacy	High	13	8.8	13	27.7	5	11.6	31	13.0
	Moderate	105	70.9	23	48.9	27	62.8	155	65.1
	Low	30	20.3	11	23.4	11	25.6	52	21.9
Attitude	Very supportive	128	86.5	43	91.5	39	90.7	210	88.2
	Supportive	19	12.8	4	8.5	4	9.3	27	11.3
	Less supportive	1	0.7	0	0.0	0	0.0	1	0.4
Health Behavior	Good	1	0.7	0	0.0	0	0.0	1	0.4
	Moderate	22	14.9	8	17.0	5	11.6	35	14.7
	Low	125	84.5	39	83.0	38	88.4	202	84.9

Health literacy is an individual's ability and capacity to gain access to, understand and interpret basic health information to help make the right decisions related to health.[19] Good health literacy is significant as a basis for individual behavior in health. Understanding health literacy is important because the information obtained must be understood to make the best decisions for their health.[20] Several studies have explored the relationship between health literacy and health behavior. A positive relationship exists between health literacy, physical activity, and a healthy diet.[21] Health literacy is associated with lower intention in alcohol and tobacco.[22] This study examines the correlation of health literacy in the academic community to their behavior on campus. The data is presented in table 5.

In the student group, most of them have moderate health literacy (70.9%). Among students, only (15.2%) were categorized as 'moderate' in implementing healthy behavior on campus, while (83.8%) of most of them were categorized as 'low'. There is no significant correlation between health literacy and students' healthy behavior (p-value=0.327). Most of the lecturer group have moderate health literacy (48.9%). Among lecturers, only (13%%) were categorized as 'moderate' in implementing healthy behavior on campus, and most (87.0%) were categorized as 'low'. There is a significant correlation between health literacy and the healthy behavior of lecturers (p-value=0.034). Likewise, in the academic staff group, most have moderate health literacy (62.8%) and are still 'low' in implementing health behavior on campus. The relation between health literacy and health behavior among academic staff was insignificantly (p-value=0.068).

Even though health literacy was moderate, not all of the academic community adopted healthy behavior on campus. Their health behavior is likely influenced by various factors, such as motivation, beliefs, availability of facilities and infrastructure, individual skills, and support from other parties, such as fellow friends. Knowledge alone is often not enough to drive individual behavior. Barriers that often lead to failure in healthy behavior include lack of time (due to family, household and work responsibilities), access problems (to transportation, facilities and resources), financial costs, lack of knowledge, entrenched attitudes and behaviors, restrictions.[23]

This study found that it is quite easy for academic community to understand the benefits and advantages of a healthy canteen (62.1%), but it is still very difficult for them to utilize a healthy canteen at the faculty (31.9%). In addition, they still have difficulty finding information about campus health services and facilities (43.2%), this may be due to the lack of outreach and information to them about the existing services, which ultimately results in low utilization of campus services and facilities. Most of the academic community has never received socialization and education and non-communicable disease screening services from the campus in the last 30 days. This needs to be a concern in the future to bring non-communicable disease health services closer to the academic community. Likewise regarding work or study-life balance. Deciding to improve health is considered 'easy' for most of the respondents in this study (56.7%), although implementing health on campus still faces many challenges.

The health literacy of the academic community needs to be continuously improved. The health-promoting university makes health literacy a main topic to encourage students and staff to implement healthy behavior on campus. When health literacy increases, the ability, and skills to prevent and maintain health will also increase.[24] Health literacy is an important factor in shaping health behavior and must be a major issue in all settings.

Table 5. Bivariate analysis between health literacy and health behavior

Health Literacy	Health Behavior											
	Student				Lecturer				Academic staff			
	Good	Moderate	Low	p-value	Good	Moderate	Low	p-value	Good	Moderate	Low	p-value
High	0 (0.0%)	4 (30.8%)	9 (69.2%)		0 (0.0%)	5 (38.5%)	8 (61.5%)		0 (0.0%)	2 (40.0%)	3 (60.0%)	
Moderate	1 (1.0%)	16 (15.2%)	88 (83.8%)	**0.327**	0 (0.0%)	3 (13.0%)	20 (87.0%)	**0.034**	0 (0.0%)	3 (11.1%)	24 (88.9%)	**0.068**
Low	0 (0.0%)	2 (6.7%)	28 (93.3%)		0 (0.0%)	0 (0.0%)	11 (100%)		0 (0.0%)	0 (0.0%)	11 (100%)	

Education is critical to health equity, in both low and high-income countries. Health education interventions can be used to increase health literacy, which significantly impacts healthy behavior.[25,26] Highly literate people are more likely to scrutinize information more carefully and will be more responsive to health education messages and manage their health.[27] Individual with a high level of e-health literacy is able to access, understand, evaluate and use health information to address health problems appropriately.[28,29]

Attitude is readiness or availability to act and is a tendency to behave. This is a person's internal (closed) reaction or response to a stimulus or object. Attitude as a predictor of behavior is assumed to be a function of beliefs about the possible consequences of behavior, which are also called behavioral beliefs.[30] Attitude can mean positive and negative. Someone who has a positive attitude, does not necessarily take the expected action because it is influenced by other stimuli such as knowledge, social support and facilities.[31,32]

Table 6 shows that most of the students (86,5) strongly support implementing a health-promoting university (HPU) at UNSOED. If attitudes about HPU are associated with healthy behavior on campus, it was obtained among those who are strongly supports it, there are (14,8%) who are in the 'moderate' category in implementing healthy behavior, while more (84,8%) were still 'low'. There is no significant correlation between attitudes about HPU and the healthy behavior of students on campus (p-value=0.987). In the lecturer group, most of them (91,5%) strongly support the implementation of HPU, but among those who strongly support this, only a few (16,3%) adopt moderately healthy behaviors on campus, most (83,7%) were still 'low'. There is no significant correlation between attitudes about HPU and healthy behavior on campus (p-value=0,657). The same data was obtained from the academic staff group, showing no significant correlation between attitudes about HPU and healthy behavior among academic staff on campus (p-value=0,381).

This study measured attitudes in the form of reactions of respondents' feelings in supporting or disapproving of the Health-promoting University Program. The result showed good responses, that students, lecturers, and academic staff strongly supported the concept of a health-promoting university.

According to the academic community, the campus should provide a healthy canteen so the community members, especially students, will prefer to eat on campus rather than outside the campus. In addition, the campus should provide adequate sports facilities that can be utilized by all community members, each department should have a special schedule for joint sports and it is mandatory. The campus should facilitate access to health services for community members who need them.

Meanwhile, on the aspect of attitude, many respondents disagree about the placement of parking lots far from the building (41.5%) and the use of campus bicycles. This is related to the variable of healthy behavior which shows that it is still rare among the academic community to park their vehicles far from the office and lecture building (35.2%). The attitude aspect also shows the high number of respondents agreeing and strongly agreeing that campuses should provide healthy canteens for the academic community. Most students (60.1%) and lecturers (74.4%) strongly agree that establishing a good relationship between lecturers and supervisors can prevent stress during the consultation process.

Table 6. Bivariate analysis between attitude about HPU and health behavior

Attitude about HPU	Health Behavior											
	Student				Lecturer				Educational Staff			
	Good	Moderate	Low	p value	Good	Moderate	Low	p value	Good	Moderate	Low	p value
Very supportive	1 (0.8%)	19 (14.8%)	108 (84.4%)		0 (0.0%)	7 (16.3%)	36 (83.7%)		0 (0.0%)	4 (10.3%)	35 (89.7%)	
Supportive	0 (0.0%)	3 (15.8%)	16 (84.2%)	0,987	0 (0.0%)	1 (25.0%)	3 (75.0%)	0.657	0 (0.0%)	1 (25.0%)	3 (75.0%)	0,381
Less suportive	0 (0.0%)	0 (0.0%)	1 (100%)		0 (0.0%)	0 (0.0%)	0 (0.0%)		0 (0.0%)	0 (0.0%)	0 (0.0%)	

The correlation between attitude and health behavior has been proven in several studies. Yanti et al (2020) study resulted that there is a relationship between positive attitudes regarding COVID-19 prevention behavior in society.[33] A positive attitude is related to COVID-19 prevention measures.[34] The findings are the same as in the study that a positive attitude significantly affects compliance with hand washing, wearing masks, and keeping a safe distance during the COVID-19 quarantine period.[35] The culture and attitudes significantly correlate with adolescents' healthy behavior in Malaysia.[36] Higher desire or interest in adolescents plays a role in osteoporosis prevention behavior.[37]

Even though many of the respondents have an attitude that supports the implementation of a health-promoting university, it is still not conformable to implementing healthy behavior in the campus environment. This is possible due to limited facilities and infrastructure, inadequate access, time, costs, and opportunities. In addition, during the COVID-19 pandemic, the academic community had restrictions on social activities on campus, which hindered several actions, such as access to healthy canteens, joining sports activities, and accessing campus health services. Facilities and infrastructure, procedures, regulations, and resources enable behavior to be realized. Enabling factors are forces that facilitate or inhibit individual, collective or environmental change based on their level of availability,[38] for example through good urban planning to promote safe cycling behavior.[39] University environment and the students are two factors influencing college students' eating behavior.[40]

This study has several limitations. First, data collection was carried out during the COVID-19 pandemic in 2021 where work from home and study from home were implemented. Second, the data collection method uses an online questionnaire. Therefore, studies with larger sample sizes and better data quality are required to further confirm these findings. In addition, measuring healthy behavior on campus requires a longer period of time.

Health promotion programs implementation in the UNSOED campus environment is an important thing to do. University health programs aim to protect health and increase productivity among academics. Besides that, it is beneficial for reducing the number of absenteeism due to illness, reducing medical costs, and reducing the prevalence of the disease. It is necessary to develop a health promotion university program that follows the needs of the academic community, especially related to healthy canteen facilities including a healthy menu, management quality, and hygiene, developing and maintaining sports infrastructure such as sports center, pedestrian, campus health services, promotion and preventive efforts such as regular diagnostic (screening) for academic member and health insurance, and increasing health literacy so that all academic community has high literacy related to health, for example developing peer group of students about a strategic issue in the campus such as bullying, mental health, nutrition, physical activity; develop a health-counseling center for academics. It is necessary to advocate for the decision maker (Rector) to make a policy design for a healthy campus.

CONCLUSION

This study found that most academic community had moderate health literacy and a supportive attitude toward health-promoting universities. However, most respondents are still at a low level of implementing healthy behaviors on campus. Only the lecturer group showed a significant correlation between health literacy towards behavior (p-value=0.034). Meanwhile, there was no significant correlation between attitudes about HPU towards healthy behavior on campus for all groups. It is necessary to develop a health promotion program at UNSOED tailored to the problems and needs. The health promotion program will increase health literacy and make healthy behavior a culture in the academic community.

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