THE RELATIONSHIP BETWEEN COFFEE CONSUMPTION HABITS AND *SCREEN TIME* WITH THE INCIDENCE OF OBESITY STUDENTS SENIOR HIGH SCHOOL 2 JAMBI CITY IN 2024

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ABSTRACT

Background: Obesity is a condition in which there is an imbalance between the entry and exit of energy in the sufferer. Obesity is one of the diseases that afflicts many people around the world, especially teenagers. Obesity continues to increase, which is feared to be one of the triggers of the causative factors of type 2 diabetes mellitus. The purpose of this study is to determine the relationship between coffee consumption habits, *screen time* and the incidence of obesity in students of SMA Negeri 2 Jambi City.

Methods; The research design uses *a cross sectional* design with a sample of 70 respondents. The sampling technique uses *the proportional random sampling technique.* The results of this study were carried out data analysis test using *chi-square test.*

Results: The results of the statistical test using the *chi-square test* with a *p- value* of 0.1 (*p-value* > 0.05) which means that there is no relationship between coffee consumption habits and the incidence of obesity. For the relationship with coffee volume P value of 0.507 (*p-value* > 0.05) was obtained where there was no relationship between coffee volume and obesity in students at SMAN 2 Jambi City. The results of the *chi- square* test were obtained with a P value of 0.001 (*p-value < 0.05)* **Conclusion:** which means that there is a relationship between *screen time* and the incidence of obesity in students of SMA Negeri 2 Jambi City.

Keywords: Obesity; Coffee Consumption; Screen Time.

INTRODUCTION

Obesity is a condition in which body fat accumulates excessively, so that a person's weight exceeds the normal limit and poses a risk of health problems in sufferers (Wulandari, 2016). Obesity falls under the category of diseases according to *International Statistical Classification of Diseases and Related Health Problems 10th revision* (ICD-10) issued by WHO with the code E66 (WHO 2016). A person is said to be obese if his body weight reaches more than 20% of his normal body weight. Obesity is also affected by an imbalance in one's lifestyle and bad habits so that there is an imbalance between energy intake and energy expenditure (Dewi 2015).

Obesity can be experienced by children, adolescents, and adults regardless of whether they are men or women (Khoirunnisa 2022; Sunanda et al., 2023). A teenager is someone aged 10-18 years (Permenkes 2014). Adolescence is a transition period from childhood to adulthood.

The World Health Organization (WHO) stated that the incidence of obesity in 2016 was 13.1% (340 million adolescents ≥aged 5-19 years were overweight or obese). WHO states that obesity is one of the risk factors that always increase every year which threatens the health of the world's people. In 2022, obesity in adolescents increased with an incidence rate of 16% (390 million adolescents are obese) (WHO, 2020).

In Indonesia, based on the results of Basic Health Research (RISKESDAS) in 2013, the prevalence of obesity among adolescents was 1.6 % and in 2018 the prevalence of obesity in adolescents > 15 years increased by 4.0%.

With the highest obesity prevalence data in DKI Jakarta province with a figure of 8.3% while the lowest obesity prevalence is in East Nusa Tenggara province with a figure of 1.0 %. (RISKESDAS, 2018). For Jambi Province, data from riskesdas 2018 shows the prevalence of overweight in the same adolescent age group of 2.7%. Data found from a survey by the Jambi City Health Office showed that there were 2,382 people with obesity in 20 Jambi city health centers with obesity in adolescents as many as 174 adolescents and the highest number was found in the Pal X Health Center, especially at the high school level as many as 45 people. The incidence rate of overweight in Jambi province is 11.3% for men and 15.9% for women (Jambi Provincial Health Office, 2022).

Obesity can result in premature death because it can trigger the emergence of degenerative diseases such as diabetes, heart problems, high blood pressure, problems in the growth/development stage, increasing the rate of illness and death (Masrul, 2018), Obesity can also cause problems in confidence and body image in adolescents (Dewi, 2015).

One of the factors that affect obesity is the problem of unhealthy food intake, for example, the habit of consuming sugary drinks causes a lot of calorie accumulation in the body which causes obesity, and other diseases. Coffee is a form of sweet drink that is in demand among teenagers, the type of coffee that can affect the occurrence of obesity is coffee that uses additional ingredients in its presentation such as sugar, milk, creamer, boba, and coconut milk. Changes in nutritional status caused by coffee are an increase in energy and lipotic activity in the body (Kusumawati et al, 2020: Putra et al., 2021). Side effects caused by caffeine are cardiovascular disease, type 2 diabetes mellitus, sleep pattern disorders, and some types of cancer due to an increase in body mass index (Putri et al., 2020). Coffee has

undergone many changes, in ancient times coffee was only served with sugar as a natural sweetener. The process of processing coffee and its ingredients to reduce its bitter taste such as the addition of milk, creamer, coconut milk, and boba, so that coffee becomes more preferred by teenagers and as a *Life Style* contemporary. According to (Brewing, 2020) As many as 60% of teenagers like milk coffee because they are trying to explore new flavors and additives in coffee presentation. International Coffee Organization (ICO) data noted that the trend of domestic coffee consumption in Indonesia has continued to increase over the past five years. In the 2018-2019 period, the number of domestic coffee consumption reached 4,800 bags with a capacity of 60 kilograms (International Coffee Organization, 2020). Brewing (2020) said that in 2019 there were >2937 coffee shop outlets that opened throughout Indonesia. According to the Insight Center (KIC) data survey, the most contemporary beverage consumers are from the millennial generation aged 15-19 years as much as 45% (Annur 2022).

Lack of physical activity is also a risk factor for the onset of obesity. physical activity can improve physical fitness and can control excess weight if done regularly, especially in adolescents, but many teenagers rarely do physical activity every day. Adolescents who do 9.0% of physical activity can be seen in a very large ratio with adolescents who do less physical activity as much as 84.9% and who do not do physical activity as much as 9.1% (Krismawati, 2018; Putra et al., 2022). This is due to many things such as lack of motivation, no time, and the influence of social media. Physical activity is necessary for adolescents to reduce their lifestyle *sedentary* and increase calorie expenditure and control weight. The popularity of gadgets as a technological development today can have a negative impact when used excessively (Jeki, 2023).

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The development of today's technology makes teenagers feel easier to do something that results in monotonous behavior and laziness. Teenagers spend more time sitting for long hours and doing activities *Screen Time* accompanied by hanging out with other friends (Nabawiyah 2020). These activities make teenagers lazy to do physical activities and choose to play *smartphone* everyday. *Screen time* It is the duration of time that a person spends every day staring at the screen.

In the United States, adolescents 8-18 years old spend an average of about 7.5 hours per day in front of a screen. This significant amount of time is associated with the onset of nutritional problems in adolescents (Houghton, 2015). The results of research showed that 27.9% of adolescents used gadgets for less than or equal to 120 minutes per day, while 72.1% of adolescents used gadgets with a duration of more than 120 minutes per day (Kumala, 2019).

The results of Putri (2020) the incidence of obesity in students of the Faculty of Health Sciences, University of Muhammadiyah Pontianak It is known that there is a significant relationship between coffee consumption and the incidence of obesity, students who consume coffee >2 times a day are at risk of obesity by being influenced by the type of coffee consumed found to be related to the possibility of obesity. Instant coffee drinkers who use sugar and creamer have a higher risk of overweight (BMI> 23) and obesity than non-drinkers.

The results of Suraya's (2018) research on the incidence of obesity in adolescents at Madrasah Aliyah Negeri Binjai, adolescents who have *Screen Time* Longer/more than the recommended time tends to be obese. As a result, they do little physical activity. *Screen time* which is excessive will further increase the imbalance of incoming energy with the energy expended by the body (Suraya, 2018).

The objectives of this study are to find out the relationship between coffee drinking habits and *screen time* and the incidence of obesity in students at SMA Negeri 2 Jambi City.

METHODS

The research design uses *a cross-sectional* design of the study risk factors between exposure (consumption caffeine and screen-time habits) with the incidence of obesity in students of SMA Negeri 2 Jambi City. This research was conducted on high school students in grade 11 in May-June. The population of this study is 396 students. This study uses a sampling technique using proportional random sampling with a sample of 70 respondents. The data analysis technique used is the Chi Square test.

This study obtained data using a questionnaire, the questionnaire sheet given to respondents was a nutritional status questionnaire, a coffee consumption habits questionnaire and a screen time questionnaire (QUEST).

RESULTS AND DISCUSSION

General Description of The Sample

The characteristics of the sample of students with female and male gender are equal to many with 35 people (50.0%). Based on age characteristics, most students were 16 years old as many as 37 people (52.9%) followed by students aged 17 years as many as 32 people (45.7%) and a small proportion of students aged 18 years as many as 1 person (1.4%).

Body Massa Index

Body mass index (BMI) is an indicator of nutritional status, both for undernutrition and overnutrition (Supriasa, 2016).

Table 1. Average Distribution of Adolescent Body Mass Index at SMA Negeri 2 Jambi City

Mean	S.D	Min	Max
25,357	4,799	15,0	36,9

The average Body Mass Index (BMI) of respondents at SMA Negeri 2 Jambi City in this study was 25.357, Standard Deviation (s)

= 4.7999, the smallest BMI was 15.0, and the largest was 36.9.

Table 2. Frequency Distribution of Body Mass Index of Adolescents in SMA Negeri 2 Jambi City.

Nutrition status	Frequency	Percent (%)
Non obese	46	65,7
Obese	24	34,3

The frequency distribution of Body Mass Index (BMI) of students at SMA Negeri 2 Jambi City in this study was 46 (65.7%) adolescents in the non-obese category and 24 (34.3) adolescents in the obese category.

Coffee Consumption Habits

The results showed that coffee consumption of 70 respondents who regularly consume coffee as many as 48 students (68.6%) and students who do not consume coffee as many as 22 students (31.4%).

Table 3. Frequency Distribution of coffee consumption of Adolescents in SMA Negeri 2 Jambi City.

Coffee Consumption	Frequency (n)	(%)
Yes	48	68,6
No	22	31,4

Frequency Daily Coffe Consumption

The results of the study showed the frequency of drinking per day in students of SMA Negeri 2 Jambi City. The frequency of 1 time was 16 students (22.9%). The frequency of 2 times was 21 students (30.0%). The frequency of 3 times was 10 students (14.3%), the frequency of 4 times was 1 student (1.4%) and the frequency of not consuming was 22 students (31.4%).

Table 4. Frequency Distribution of coffee consumption of Adolescents in SMA Negeri 2 Jambi City.

Frequency consumption	Frequency	Percent (%)
0	22	31,4
1	16	22,9
2	21	30,0
3	10	14,3
4	1	1,4

Volume Coffee Consumption

The results of the study show that the frequency distribution of the volume of coffee drunk is only in the medium and high categories. Coffee consumption in the medium category was 28 students (58.3%), and in the high category as many as 20 students (41.7%).

Table 5. Frequency Distribution of coffee consumption of Adolescents in SMA Negeri 2 Jambi City.

Volume Coffe Consumption	Frequency (n)	(%)
Medium	28	58,3
High	20	41,7

Screen Time

The results showed that the average value = 9.839, Median (Me) = 10,000, Standard Deviation (s) = 2.8044, the lowest screen time activity was 3.4 hours, while the highest value of screen time was 17.7 hours.

Table 6. Average Distribution of Adolescent Screen Time at SMA Negeri 2 Jambi City

Mean	S.D	Min	Max
9,839	2,8044	3,4	17,7

Meanwhile, in looking at the frequency of screen time data, it is categorized into sufficient and high, as in the table below:

Table 7. Frequency Distribution of Screen Time Adolescents in SMA Negeri 2 Jambi City.

Screen Time	Frequency (n)	(%)
Medium	30	42,9
High	40	57,1

The results of the study showed that the duration of adolescent screen time at SMA Negeri 2 Jambi City in this study was 30 (42.9%) screen time in the moderate category and 40 people (57.1%) in the high category.

The relationship between coffee consumption and obesity in students of SMA Negeri 2 Jambi City

Coffee consumption habits are an expression of each individual in consuming coffee every day or every occasion, the habit of consuming sugary drinks such as coffee excessively can lead to obesity. Distribution overview incidence of obesity according to coffee consumption habits listed in the table 8:

Table 8. The relationship between coffee consumption and obesity in students of SMA Negeri 2 Jambi City

Variable		Coffee Consumption		*p*
		Yes n (%)	No n (%)	
BMI	Obese	17	7	0.768
	Non obese	31	15	

Data analysis showed that adolescents who were obese and consumed coffee were 17 (70.8%) while adolescents who did not consume coffee were 7 (29.2%). The results

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of the analysis used a chi-square P-valeu test of 0.768 > 0.05 which means that there is no relationship between coffee consumption and the incidence of obesity in adolescents at SMA Negeri 2 Jambi City.

The relationship between screen time and obesity in students of SMA Negeri 2 Jambi City

Screen time is the duration of time that a person spends every day staring at the screen. Distribution overview incidence of obesity according to screen time listed in the table 9: Data analysis showed that adolescents who were obese with high screen time duration were 20 (83.3%) while obese adolescents with sufficient screen time were 4 (16.7%). The results of the statistical test analysis using the chi-square test obtained a p-valeu value of 0.001 < 0.05 which means that there is a relationship between screen time and the incidence of obesity in students at SMA Negeri 2 Jambi City.

Table 9. The relationship between screen time and obesity in students of SMA Negeri 2 Jambi City

Variable		Coffee Consumption		*p*
		Yes n (%)	No n (%)	
BMI	Obese	4	20	0.001
	Non obese	26	20	

Obesity according to the World Health Organization (WHO, 2016) is one of the conditions where there is an accumulation of excess fat in the body which can interfere with health. Obesity is not only occurs in adulthood or the elderly, but can also occur among teenagers up to the younger group is children. Obesity that occurs during childhood can be at high risk become obese in adulthood.

The results of the study obtained the maximum value of the student's BMI was 36.9 which was included in the obesity category (>27.0). The frequency of students who are obese is 24 (34.3%) people. Obesity, if not controlled, can cause physical and psychological disorders and cause many kinds of degenerative diseases such as diabetes mellitus type 2 (Sajawandi, 2015).

One of the factors that affect obesity is the problem of unhealthy food intake, for example, the habit of consuming sugary drinks causes a lot of calorie accumulation in the body which causes obesity, and other diseases. Coffee is a form of sweet drink that is in demand among teenagers, the type of coffee that can affect the occurrence of obesity is coffee that uses additional ingredients in its presentation such as sugar, milk, creamer, and boba.

Trends today are a must that teenagers follow both from the way they dress to a variety of food and drinks. Coffee is one of the many drinks that are in demand in various circles, especially teenagers. Coffee consumption in this modern era has become one of the habits and lifestyles for prestige competitions between teenagers (Assegaf, 2021).

In this study, it was obtained that the prevalence of the habit of consuming coffee in adolescents eating fast food with frequent frequency in obese children was 17 (70.8%). The results of the *chi-square* test analysis of the relationship between coffee consumption habits and obesity obtained a value of p =0.768, this shows that there is no significant relationship between coffee consumption habits and obesity at SMAN 2 Jambi City. The results of this study are in line with research (Khasanah et. al, 2023) which said that consuming coffee has no significant relationship with the increase in nutritional status in adolescents in southern jagakarsa, a person who consumes coffee has a normal nutritional status of 48 (53.5%). This study obtained results with p value = 0.116 which means that there is no relationship between coffee consumption and the incidence of obesity in adolescents.

The results of the chi-square statistical test obtained a P-valeu value of 0.507 > 0.05 where it can be concluded that there is no relationship between coffee volume and obesity in students of SMA Negeri 2 Jambi City. The results of this study are in line with

research conducted by Megawati (2022) stating that a person with a high level of coffee consumption has a lower BMI. This study obtained a result of p=0.388 > 0.05 which means that there is no relationship between consumption volume and the incidence of obesity. This is because the consumption of coffee drunk is low, causing a lack of influence on the increase in the nutritional status of respondents, the average respondent consumes 1 time/day. Consumption of coffee without additives in normal amounts can help reduce the risk of sarcopenia, but if consumed > 3x/day, it will cause an increase in body mass index, especially in women.

The development of today's technology makes teenagers feel easier to do something that results in monotonous behavior and laziness. Adolescents often spend time sitting for hours and doing screen time activities accompanied by hanging out with other friends (Nabawiyah 2020). This activity makes teenagers lazy to do physical activities and choose to play smartphones all day. Among children and teenagers play computers, gadgets, video games, and the use of the internet turns out to be associated with advantages weight. This is due to the large number of television content that moves to computers and smartphone so that it is very easy to provide Effects of addiction on children. Light physical activity causes low energy output, causing an imbalance between more energy intake and less energy expenditure (Astika, 2023).

The duration of screen time recommended by the American Academy of Pediatrics (2016) adolescents do not use smartphones for more than two hours every day. Screen time affects a person's body mass index because it can cause an imbalance between incoming and outgoing energy.

Based on the results of this study, the average value of adolescent screen time duration was 9.387. And based on the analysis test using the *Chi Square* test, a P

value of 0.0001 < 0.05 was obtained which shows a relationship between screen tie and the incidence of obesity in SMAN 2 students of Jambi City.

The results of this study are in line with Suraya's (2020) research which shows that screen time has a relationship with the incidence of obesity in adolescents with a value (p= 0.026). Another study from Putri (2020) showed that adolescents who did screen time ≥3 hours per day were at risk of experiencing obesity 14,538 times compared to students who had screen time.

CONCLUSION

It can be concluded that there is no relationship between coffee consumption and coffee volume and the incidence of obesity, but there is a relationship between screen time and the incidence of obesity in students of SMAN 2 Jambi City.

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CONFLICT OF INTEREST

There are no conflicts of interest in this study.

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