



## Eating behaviour: How health concern, self-control and gender influence healthy food choice

*Perilaku makan: Bagaimana kepedulian kesehatan, kontrol diri, dan gender memengaruhi pilihan makanan sehat*

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## Abstract

Most Indonesians are unable to control their food choice. This factor is due to individual indifference to maintaining health, self-control, and gender. This study aimed to examine the personal factors that can influence healthy food choices. The research method used a quasi-experimental with post-test-only control group design; the total sample included 143 participants aged between 17-25 years. This study was conducted at the Psychology Laboratory of Semarang State University in September 2023. Health concerns and self-control were measured by filling out a questionnaire, and an experimental test was conducted to choose healthy food using the Fake Food Buffet. Data analysis was performed using GLM univariate test. The results of this study indicate that there is a significant influence of health concern and self-control on healthy food choices, but the results of gender analysis on healthy food choices are not significant. This means that individuals who care about health and have strong self-control choose healthy food. However, there were no differences in food choice behaviors between women and men. It can be concluded that personal factors, such as health concerns and self-control, significantly influence the choice of healthy food. This could reduce the level of obesity that will occur in the future.

**Keywords:** Gender, health concern, healthy food, obesity, self-control

## Abstrak

Sebagian besar masyarakat Indonesia belum mampu mengontrol pilihan makanan yang akan dikonsumsi. Faktor tersebut akibat ketidakpedulian individu untuk menjaga kesehatannya, serta faktor pengendalian diri dan gender. Tujuan penelitian untuk menginvestigasi faktor personal yang dapat memengaruhi pilihan makanan sehat sehingga dapat digunakan sebagai faktor penting untuk mengurangi obesitas di Indonesia. Metode penelitian menggunakan quasi eksperimen dengan desain *posttest only control group design*. Responden berjumlah 143 orang dengan rentang usia 17-25 tahun; dilakukan di Laboratorium Psikologi Universitas Negeri Semarang pada bulan September 2023; diukur dengan pengisian kuesioner kemudian uji eksperimen memilih makanan sehat menggunakan *Counterfeit Food Buffet*; analisis data menggunakan Uji GLM Univariat. Hasil, terdapat pengaruh antara kepedulian kesehatan dan pengendalian diri terhadap pilihan makanan sehat, tetapi faktor gender terhadap pilihan makanan sehat tidak signifikan. Faktor kepedulian dan kontrol diri merupakan faktor penting untuk mengurangi obesitas di Indonesia, namun tidak ada perbedaan perilaku makan antara perempuan dan laki-laki dalam memilih makanan sehat sehingga gender tidak termasuk dalam komponen penting untuk mengurangi obesitas. Kesimpulan, faktor personal seperti kepedulian kesehatan dan pengendalian diri secara signifikan memberikan pengaruh besar dalam memilih makanan sehat dan menjadi faktor penting untuk mengurangi tingkat obesitas di masa depan.

**Kata Kunci:** Gender, kepedulian kesehatan, kontrol diri, makanan sehat, obesitas,

## Introduction

According to the World Health Organization (WHO), in 2020, 1,9 billion adults aged 18 years and over were overweight, and 650 million people were obese (WHO, 2020). Obesity can cause non-communicable diseases such as diabetes mellitus, hypertension, and cardiovascular disease, which can result in death (Dinutanayo et al., 2021).

Obesity has become a focus of public attention in Indonesia. According to the Indonesian Health Survey (IHS) in 2023, the prevalence of central obesity in men reaches 8,3 – 9,2% while in women it reaches 23,4 – 24,7% at the age of 15-24 years (Survei Kesehatan Indonesia, 2023). Many factors cause obesity, including unhealthy lifestyle (Nabawiyah et al., 2020), lack of physical activity (Toar et al., 2023), lack of nutritional value, and irregular eating patterns (Putri et al., 2017). The data show that 96,7% of the people in Indonesia do not consume sufficient vegetables. These data show that Indonesians have not been able to control their food choices, resulting in an increase in obesity. This is because individuals are less concerned with their health (Irawan et al., 2022).

Personal factors, particularly health concerns, are thought to influence healthy food choice. Several studies have shown that health problems can influence a person's food choices (Puspawati et al., 2015). Someone who cares about health tends to choose healthy food, which leads to improvements in unhealthy eating habits (Kadir, 2016). They must have a high level of readiness to adopt a healthy lifestyle by choosing nutritious foods (Malik et al., 2021) and is motivated to engage in conscious behavior regarding the importance of health. This can assess the extent to which a person plays an active role in maintaining their health (Santoso et al., 2018). Individuals who have high readiness are usually more consistent in choosing healthy foods and frequently doing physical activity to reduce the risk of obesity and other non-communicable diseases (Nabawiyah et al., 2020).

The results of previous research indicate that health concerns are a strong predictor of a person's attitude toward choosing healthy food (Kutresnaningdian, 2018). However, other research results show that approximately 50% of individuals who care about their health still

choose unhealthy foods, such as chocolate and French fries (Mizia et al., 2021). In addition, previous research has shown that approximately 70% of individuals choose food without paying attention to health (Ratih et al., 2022). This occurs because of individuals' unpreparedness to continue choosing healthy foods, which can increase the rates of obesity and other non-communicable diseases (Malik et al., 2021). Therefore, in addition to health problems, it is predicted that other factors can influence the choice of healthy food.

Another personal factor, self-control, is thought to influence an individual's choice of healthy food (Mackenbach et al., 2019). Previous research has shown that self-controlled individuals tend to have a higher purchase interest in healthy food products (Ninda, 2022) such as fresh food, vegetables, and fruits. Meanwhile, individuals with weak self-control choose unhealthy foods (Dalton et al., 2020). However, the results of other studies state that individuals with weak self-control do not rule out the possibility of choosing healthy food because there are other factors that influence the choice of food (Sullivan et al., 2015).

Gender is also thought to influence a person's attitude towards choosing healthy food (Muna et al., 2019). Previous research has shown that sex influences individuals' choice of healthy food, meaning that there are differences between men and women in choosing healthy food. However, other studies have shown that gender does not influence a person's attitude toward choosing food (Syah et al., 2017), meaning that there is no difference between men and women in choosing healthy foods.

The results of previous research are less consistent and limited; therefore, new research needs to be conducted. The novelty of this research is that it uses the Fake Food Buffet tool to measure individual eating behavior and investigate the relationship between personal factors such as health concerns, self-control, and gender and healthy food choices. This study aimed to determine the influence of personal factors in the form of health problems, self-control, and gender on healthy food choices. This hypothesis shows the influence of personal factors on healthy food choices, and identifies important factors for reducing obesity levels in Indonesia.

## Methods

### Research Desain

This research used quantitative and quasi-experimental methods with a post-test-only control group design. This method was used because it can minimize the bias that may arise regarding treatment and makes it easier for researchers because it does not require initial measurements before treatment.

This research was conducted at the Psychology Laboratory of Semarang State University for a period of 2 months, namely September – October 2023

### Sampel dan Respondent

The sampling technique used was a purposive sampling technique with the criteria of not undergoing a diet program, not being vegetarian and not having food allergies.

By using G Power 3.1.9.4 regression analysis (Erdfelder et al., 2009), with an effect size of  $d = 0,15$ ,  $\alpha = 0,05$ , and power = 0,95, a total sample of at least 107 students was obtained. The respondents were 143 Semarang State University students age range–17-25 years. The number of respondents was greater than the minimum total sample; thus, the research results could be accounted for and minimized if there were invalid data.

### Research Instrument

The material used in this study was a Fake Food Buffet (FFB), which is a replica of a food menu made from plastic and consists of 24 items (Bucher et al., 2012). The healthy food categories included white rice, grilled chicken, meatballs, boiled cauliflower, boiled potatoes, boiled carrots, bananas, apples, mineral water, plain tea, plain coffee, mineral water, and juice.

The unhealthy food categories included fried rice, fried chicken, fried sausages, fried cauliflower, fried potatoes, fried carrots, cakes, chips, sweet tea, sweet coffee, and soda. The counterfeit food buffet is used to measure healthy food choices by calculating the percentage of healthy foods chosen based on the total number of foods chosen. The reason for using the counterfeit food buffet is that it makes it easier for researchers to collect data and minimize hygiene problems when conducting the experiment.

The health concern scale used in this research consisted of 10 items to measure an individual's level of concern for health (Kähkönen et al., 1996) and a brief self-control scale consisting of 13 items (Tangney et al., 2018) to measure the level of self-control in participants.



**Figure 1.** Counterfeit Food Buffet

### Procedure

This research was conducted following general meal times, namely, breakfast and lunch. Participants will be recruited by distributing WhatsApp and Instagram application messages (online), distributing brochures in several places (offline) as well and visiting every class on campus.

Participants who receive messages via WhatsApp, Instagram, and brochures distributed in several places will be invited to the Psychology Laboratory of Semarang State University according to the time determined by the researcher. Participants were then directed to provide informed consent as a form of agreement between the researchers and participants. Next, the researcher will ask several questions in the form of demographics and several questionnaires, namely, a health concern scale to measure an individual's level of concern for health, and a self-control scale to measure the participant's level of self-control.

Next, participants will be directed to choose food from the Fake Food Buffet that has been provided. There were 24 menus were served, and participants could choose the food menu available according to their level of hunger and taste at that time. The food selected by each participant was photographed and measured. The researcher then provided a debriefing to explain the objectives of the research. All participants will receive a reward in the form of

a souvenir in the form of thanks for agreeing to participate in this study.

**Data Analysis**

This study used descriptive analysis to summarize and describe the existing data. Then the data was tested using SPSS 25.0 with the General Linear Model Univariate method

**Ethical Considerations**

This study was registered with the Semarang State University Health Research Ethics Commission (Ethical Clearance Number 410/KEPK/EC/2023).

**Result and Discussion**

Data were collected at the Psychology Laboratory at Semarang State University using a questionnaire to measure personal factors such as concern for health and self-control. Subsequently, an experimental test was conducted using Counterfeit Food Buffet.

**Table 1.** Participant characteristics (n = 143)

Characteristics	n	%
Age (years)		
17-25	143	100
Gender		
Male	67	46,9
Female	76	53,1
Body Massa Index		
Underweight	15	10,5
Ideal	100	69,9
Overweight	19	13,3
Obesse	9	6,3

The demographic data in Table 1 shows that there were more female participants aged 17-25 years (53,1%) than male participants (46,9%). The participants with BMI were underweight (10,5%), ideal (69,9%), overweight (13,3%), and obese (6,3%).

The descriptive data in Table 2 shows that the data for men (M = 60,0351, SD = 24,79005) and women (M = 60,3389, SD = 24,15179) indicate that men are lower than women. However, the standard deviation was higher in men than in women. These data also explain the level of health concern of participants (M = 61,5734, SD = 14,70675), which means that the participants were concerned about health.

Furthermore, these data explain the level of self-control (M = 53,4406, SD = 11,28605), meaning that participants could control themselves to choose healthy food. The results of this study also explain a person's behavior in choosing food (M = 60,1966, SD = 24,36685), meaning that participants choose healthy food.

**Table 2.** Descriptive statistics data

Variable	n	Mean	Std. deviation
Gender			
Male	67	60,0351	24,79005
Female	76	60,3389	24,15179
Total	143	60,1966	24,36685
Health Concern	143	61,5734	14,70675
Self Control	143	53,4406	11,28605
Healthy Food Choice	143	60,1966	24,36685

**Table 3.** Test of between-subjects effects

Sources	F	p-value	Partial Eta Squared
Gender	0,216	0,643	0,002
Health Concern	5,461	0,021	0,039
Self Control	5,555	0,020	0,040
Gender vs. Self Control	0,536	0,465	0,004
Gender vs. Self Control	0,254	0,615	0,002
Health Concern vs. Self Control	5,601	0,019	0,040
Gender vs. Self Control X Health Concern	0,606	0,438	0,000

The results of the analysis in Table 3 show that health concerns significantly influenced healthy food choices,  $F(1,135) = 5,461, p = 0,021,$  partial  $\eta^2 = 0,039,$  This means that someone who cares about their health tends to choose healthy food, Furthermore, self-control also influenced healthy food choices ( $F(1,135) = 5,555, p = 0,020,$  partial  $\eta^2 = 0,04,$ ) This means that someone with strong self-control tends to choose healthy food, If we look at the analysis of the interaction results, it can be seen that health attention and self-control have an influence on healthy food choices,  $F(1,135) = 5,601, p = 0,019,$  partial  $\eta^2 = 0,04.$  This means that someone who cares about their health and has strong self-control tends to choose healthy foods. However,

sex did not significantly contribute to healthy food choices [ $F(1,135) = 0,216, p = 0,643, \text{partial } \eta^2 = 0,002$ ]. This means that there was no difference between men and women in their choice of healthy food.

This research hypothesis tested the influence of personal factors, such as concern for health, self-control, and gender, on healthy food choices. The results of this study showed that health concerns can determine a person's behavior in choosing healthy food. This means that, if someone has health problems, they will try to maintain the food they choose. This can be explained by the feeling of worry about health, which makes someone prefer to choose the food they want to consume.

In addition to health problems, based on the results of this study, self-control can also determine how much someone will consistently choose healthy food. A person with self-control will do something makes wise decisions. Those who care about their health must have strong self-control; therefore, they are always consistent in choosing healthy food.

This study is in accordance with the Theory of Planned Behavior, a psychological theory that links beliefs with behavior developed by Icek Ajzen in 1985 (Mahyarni, 2013). If someone believes that they care about their health and have strong self-control, they tend to choose healthy food and have positive behavioral beliefs; that is, their beliefs can influence their behavioral intention to choose healthy food. This research is supported by previous research (Puspadewi et al., 2015; Kadir, 2016), which states that those concerned about health will choose healthy foods, such as vegetables and fruits. This is because individuals are ready to consume healthy and nutritious food to maintain health (Al Rahmad, 2021; Malik et al., 2021).

However, the results of this study contradict those of other studies that state that individuals with health problems do not rule out the possibility of continuing to choose unhealthy foods (Mizia et al., 2021) because there are factors that influence a person's decision to choose food, such as taste preferences, individual eating habits, mood (Septiani et al., 2019), and sensory appeal (Santoso et al., 2018).

The surrounding environment, such as friends or family, can influence a person's behavior. This indicates that normative beliefs influence a person's behavioral intentions when making decisions to choose healthy or unhealthy food. The

results of this study show that self-control is necessary for individuals to consistently choose healthy foods. This can be explained by the fact that control beliefs influence individuals' behavioral intentions to make decisions in choosing healthy food. This study is supported by previous research, which showed that people can choose healthy foods such as vegetables and fruits because they have strong self-control (Ninda, 2022). However, the results of this study contradict other research that states that individuals who have self-control still choose unhealthy foods because there are other factors, namely social heuristics. This can occur because in certain situations, especially when with other respected people or people around them, unhealthy food is chosen. Therefore, individuals with self-control choose unhealthy foods (Sullivan et al., 2015).

The results of this study also showed that sex had no influence on healthy food choices. This means that there was no difference between men and women in their choice of healthy food. This illustrates that both women and men have the same habit of choosing healthy food (Syah et al., 2017). However, the number of foods chosen by men was higher than that chosen by women. This can occur because of several factors such as different activity patterns and physical and psychological conditions (Santoso et al., 2018).

## Conclusion

This study showed that the variables of concern for health and self-control are important factors in reducing obesity levels. This study also makes several contributions to the literature on the personal factors that influence healthy food choices.

Future research is expected to conduct interventions to maintain awareness of health and self-control so that people consistently choose healthy foods and to expand the scope of adult participants to minimize the increase in obesity.

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