

**CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE**

**Faculty of Tropical AgriSciences**



**Faculty of Tropical  
AgriSciences**

**Consumers' attitude and purchase intention in  
relation to organic foods in Indonesia**

MASTER'S THESIS

Prague 2024

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## **Declaration**

I, Riski Ulina Sianturi, hereby declares that this thesis entitled '**Consumers' attitude and purchase intention in relation to organic foods in Indonesia**' is original. However, all the sources of information used in the preparation of this thesis have been acknowledged by means of complete references list in accordance with the citation rules of the Faculty of Tropical AgriSciences.

In Prague, 25.04.2024

.....  
Riski Ulina Sianturi

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God bless you all in Jesus' name, Amen.

## **Abstract**

Nowadays, the consumption of organic foods has increased in many parts of the world, including in Indonesia. Organic food has gained a lasting reputation as a premium product, also considered a better alternative to conventional foods. The view was supported by the fact that organic foods were better perceived due to health benefits and harmless approach to the environment. The main aim of this research was to investigate young consumers' attitudes towards organic foods in Indonesia, as well as the factors that impact these attitudes and intentions to purchase organic foods. Data collection was done through an online questionnaire survey which was completed by 142 students from the University of Sumatera Utara and Wilmar Business Indonesia University in Medan, North Sumatra, Indonesia. The data were analyzed by descriptive statistics, cross tabulation, and multiple linear regression. In this research, females showed higher interest in organic foods than males and vegetables were identified as the most preferred organic food category. Wise choice, impact on health, higher quality, previous knowledge, and protecting environment were found as important factors that influence consumers' attitudes towards organic foods. The significant differences between consumers' and non-consumers' attitudes were also found in several aspects such as health concerns, consumers' knowledge, environmental concerns. The study provides potential insights and recommendations for the Indonesian local governments to enhance the knowledge of consumers' behavior toward organic foods.

**Key words:** Consumers' Attitude, Health Concern, Consumers' Knowledge, Environmental Concern, North of Sumatra.

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# 1. Introduction

The global organic farming area expanded by more than 20 million hectares to 96 million hectares. The number of organic producers also increased significantly, exceeding 4.5 million. FAOSTAT (2024) reported in 2023, organic food sales amounted to approximately 135 billion euros. Increased knowledge and health benefits of organic foods is driving global demand for these products. Climate change, food safety, and quality challenges are causing a shift towards sustainability and environmental awareness. Organic farming is the most environmentally friendly option, offering a sustainable approach to agriculture and consumption. (Boone et al. 2019; Kowalska et al. 2021; Panyor 2020; Reganold & Wachter 2016; Smith et al. 2019). Organic farming principles are now used in many countries around the world, farming methods and food production systems that prohibit or limit the use of certain pesticides, fertilizers, soil amendments, and yield enhancers. Organic farming applies high animal welfare standards and promotes protection and sustainability of the natural environment according to the Council of Europe (2018).

According to the European Commission (2022) despite challenges like the pandemic, climate crisis, and economic recession, organic agriculture has gained popularity due to its resilience, reduced reliance on external factors, and short supply chain. It performs 10-30% better under extreme climate conditions (Pimentel et al. 2005; MacRae et al. 2007; Durham & Mizik 2021). Janssen & Hamm (2012) reported that in 1990, Congress mandated organic farmers to avoid synthetic materials and set national standards for food production, marketing, and labeling, the EU organic food market is rapidly growing due to health concerns and demand for safe food.

Currently, this approach appears to be the perfect and legitimate way to produce pure food that reduces the damage that chemical agriculture does to the environment and human health. Lismanizar & Utami (2018) observed that for having a healthy life, consumers are now becoming more concerned with health awareness and will be more careful in choosing the food they consume, ensuring food safety will influence purchasing intentions and become a consideration before making purchasing decisions. Knowledge about healthy living can also influence purchasing decisions for organic food (Ayaviri-Nina et al. 2022). Consumers' knowledge about healthy living is assumed to increase, it is believed that one of consumers' preventive efforts is to consume healthy products to build



body resilience (Ayaviri-Nina et al. 2022). The next factor that can also influence purchasing intention is environmentally friendly products (Lestari et al. 2020; Zayed et al. 2022). The mindset of people who are aware that consuming organic food will make their bodies healthier and are considered to help protect the environment. Consumers' attitude can influence purchasing decisions (Nguyen et al. 2021; Zayed et al. 2022; Ferreira & Pereira 2023). Attitudes towards organic food, namely general feelings, or evaluations about buying organic food based on beliefs about buying organic food (Cahyarani 2018).

This research raised issues regarding the role of health awareness, consumers' attitude, consumers' knowledge for healthy living and attention to consume food safely as well as environmentally friendly issues which influenced in purchasing intentions, especially for food that is classified as organic food. From this research, it can be seen from the perspectives of consumers and non-consumers as well as the most factor influence them regarding their intention to purchase organic foods.

## **2. Literature Review**

### **2.1 Worldwide Consumption of Organic Foods**

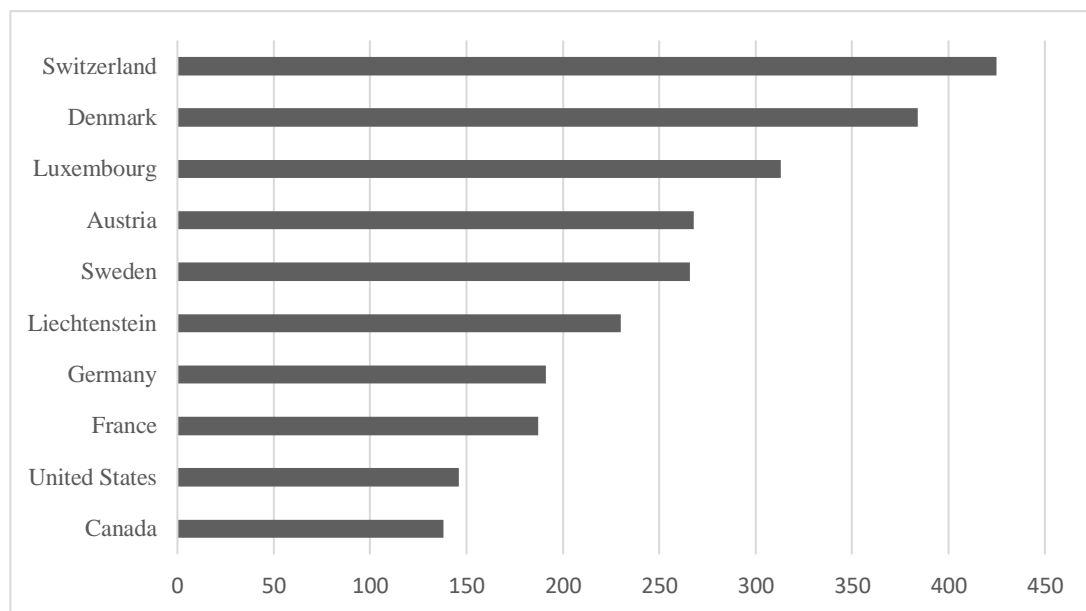
Food production and consumption have a huge impact on both the environment and human health. As a result, it is critical to achieve transitions toward higher sustainability in the food industry. In this sense, organic food production is a significant strategy (Muller et al. 2017; Squalli & Adamkiewicz 2018). Various life-cycle assessments have demonstrated the environmental benefits of organic food consumption, taking into account criteria such as biodiversity, ecotoxicity impacts, and soil quality on cultivated land (He et al. 2018; Jungbluth et al. 2000; Meier et al. 2015; Muller 2009; Treu et al. 2017; Tricase et al., 2018; Tuomisto et al. 2012). Organic food products are also strongly associated with higher food quality and health because they contain fewer pesticide residues and heavy metals than conventional food (Engels et al. 2010; Johansson et al. 2014; Nicolopoulou-Stamati et al. 2016; Probst et al. 2010; Saba & Messina 2003; WHO 1990). EU (2007) reported that guidelines for organic food production aim to promote sustainable agriculture and food processing in order to safeguard natural ecosystems and the health of soil, water, plants, and animals, as well as to produce high-quality nutritional meals that are safe for human consumption.

In Switzerland, food items must meet criteria equivalent to the organic standards of the EU as a minimum condition to be sold as organic. However, other organic food labels used in Switzerland, such as Bio-Knospe, Naturplan, and Demeter, have established their own ecological, ethical, and social standards that go beyond fundamental legal requirements (Bio-Suisse 2018).

Farmers make the operative decision to produce organic food, and their decisions are heavily influenced by market reasons (Monfared et al. 2015; Morris & Potter 1995). As a result, the demand for organic products is critical for shifting agricultural production toward more ecological and sustainable practices (Arya et al. 2009). It is thus critical to understand the psychological and structural factors that influence preference formation and purchasing decisions for organic products (Bilal Basha & Lal 2019; Michaelidou & Hassan 2008; Yazdanpanah & Forouzani 2015). An integrative behavioral model of organic food consumption was developed, considering a comprehensive set of predictors found relevant in previous research (Arvola et al. 2008; Di Vita et al. 2019; Oraman &

Unakitan 2010; Saba and Messina 2003; Thøgersen & Ölander 2006; Torres-Ruiz et al. 2018; Yazdanpanah & Forouzani, 2015). Furthermore, this previous study investigated consumers' subjective perceptions of potential barriers to more environmentally friendly and healthier food consumption in order to support recommendations for promoting organic food products (Mkhize & Ellis, 2019; Shashi et al. 2015; Torres-Ruiz et al. 2018). The nations with the highest per capita consumption of organic foods are Norway, Denmark, Sweden, France, Germany, Switzerland, Luxembourg, Austria, and the United States (Figure 1). In the year 2022, the average consumer in Denmark and Switzerland purchased about 384 and 425 euros worth of organic food, respectively. In terms of the amount of organic food consumed in that year, Luxemburg likewise scored strongly. Among all nations, Denmark and Switzerland had the highest per capita use of organic foods (Statista 2023).

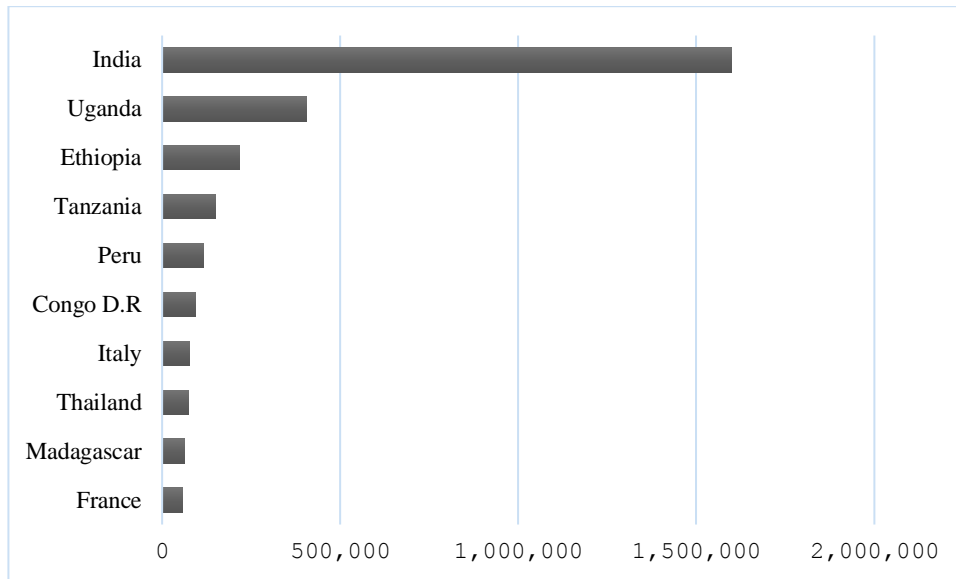
**Figure 1 Leading 10 countries with the highest organic foods per capita consumption (in Euros)**



Source: Statista 2023

In 2023, India will be the world's leading producer of organic foods (Figure 2). There were 1.6 million organic foods producers in India that year, more than all organic foods producers in the first nine countries. Figure 2 provides the list of countries producing the majority of the organic foods worldwide (Statista 2023).

**Figure 2 Leading 10 organic foods producing countries in the world**

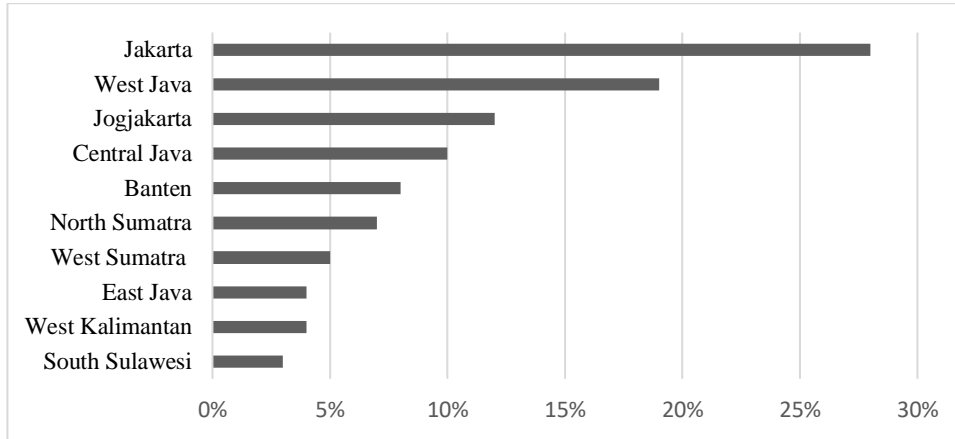


Source: Statista 2023

## **2.2 Consumption of Organic Foods in Indonesia**

The consumption of organic products is spread across 10 provinces including Jakarta 28%, West Java 19%, Yogyakarta Special Region 12%, Central Java, then in other areas East Java, Banten, West Sumatra, South Sulawesi, North Sumatra, West Kalimantan, as reported by Indonesian Organic Alliance (AOI) in 2024 (Figure 3). The study also reported that the largest consumers are still dominated by consumers who live in urban areas. The growth of the organic market in Indonesia continues to increase. This is driven by an increase in people's purchasing power and reasons to live healthier lives. Increasing awareness of healthy living in society, one of which is organic food, must be utilized properly. So far, most organic food consumers are cancer sufferers or children with special needs. Eating healthy food is an investment to avoid various chronic diseases (AOI 2023).

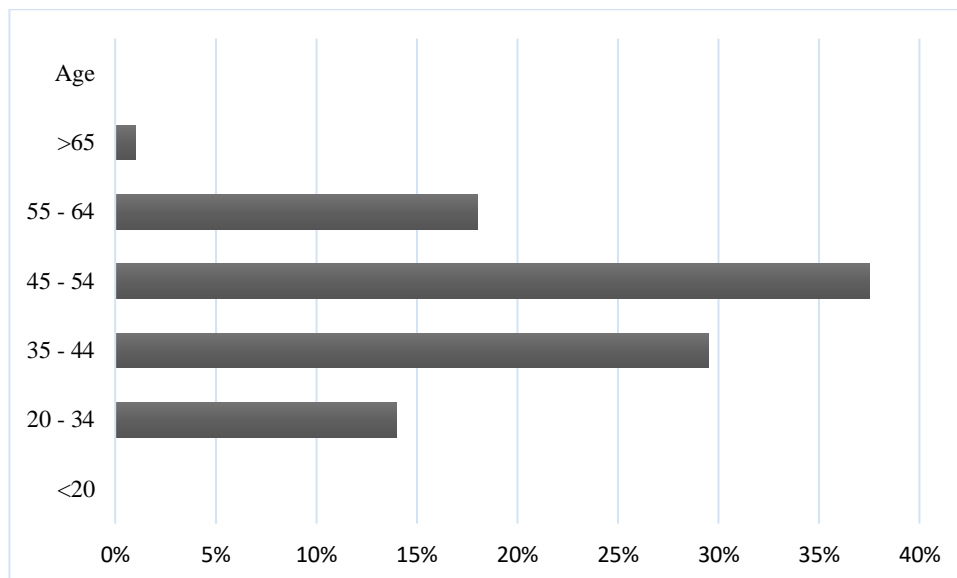
**Figure 3 Survey on the Development of Organic Product Consumption**



Source: AOI (2023).

Organic market growth in Indonesia is around 15-20%. The organic lifestyle is also starting to enter Indonesia. The production and consumption of organic food products is increasing. Not only at the generation level in their 50s, but young people or millennials. According to research, the reason consumers choose organic products was because they want to live healthier. Because there are advantages to organic products compared to non-organic products, namely pesticide free and GMO free (Handayani 2019). The details about consumers consumption of organic foods based on age are provided in (Figure 4).

**Figure 4 Consumers Consumption of Organic Products Based on Age**



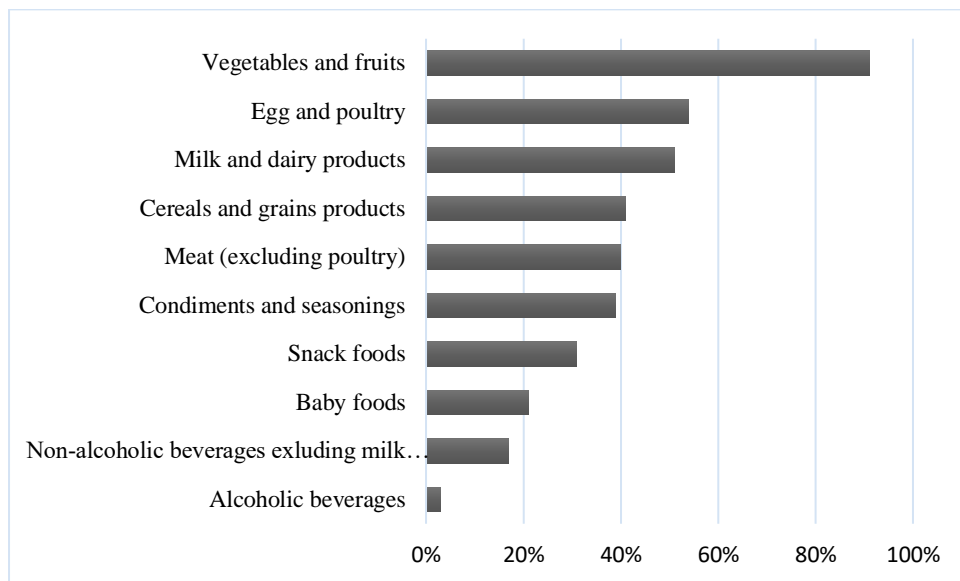
Source: AOI (2023).

The largest age range for organic consumers was 45-54 years (38%), followed by 35-44 years (30%) and then old people 55-64 years (18%), followed the generation ranged between 20-34 years was 14% and millennial less than 20 years old which is the lowest one. The phenomenon that occurs among society is that millennials who are young in their food consumption show a consumers' attitude that is still considered less than those aged > 40 years, so that organic food gets little behavior among young people (Poobalan et al. 2014). A shopping attitude that favors food safety, which can emerge from food safety knowledge, is prioritizing food that does not endanger consumer health, namely choosing from supermarkets packaged fruit, not in large quantities, choosing food with a longer grace period according to the date, month, and year according to Mihalache et al. (2020).

Indonesia's population was predicted to reach 277 million by the end of 2023 (Central Bureau of Statistics Indonesia 2023), with 38% working in agriculture. The rise of the socioeconomically middle class, as a reflection of the community's expanding prosperity, coincided with an increase in health awareness. This was a positive indicator of the growing preference for healthy and safe food products. The researchers Wandel M & Bugge A (1997) & Widjajanto & Miyauchi N (2002) found that there was valid raising consistent in terms of public health awareness in relation to purchasing of organic foods.

The trend of consuming organic foods is no longer a new thing due to environmental and health issues which is driven by an increase in people's purchasing power and reasons to live healthier. Thio (2008) stated that organic products have more vitamins, minerals, and enzymes that are beneficial for body health. Figure 5 showed the most important organic foods products among Indonesian consumers in September 2023. According to a survey by Rakuten (2023), approximately 91% of Indonesian respondents said that it was important for them to purchase organic vegetables and fruits. According to the same report, the primary reason people buy organic food in the country is because they believe it is healthier.

**Figure 5 Most important organic foods products among consumers in Indonesia**



Source: Statista 2023

### **2.2.1 Nutritional Value of Organic Foods**

Most studies compare the protein content, amino acids, vitamins, and mineral and trace elements of conventional and organic vegetables (Schuphan 1974; Clarke and Merrow 1979; Eppendorfer et al. 1979; Bourn 1994; Lecerf 1995; Wawrzyniak et al. 1997; Woese et al., 1997; Kumpulainen 2001; Bourn & Prescott 2002). However, few studies reported that crude protein and free amino acids are slightly less than conventionally grown vegetables but contain higher concentrations of several essential amino acids, normally vitamin content of conventional and organically grown vegetables is examined in only vitamins A (mainly B-carotene), vitamins B1 and B2, and ascorbic acid (vitamin C) (Jukes 1977; Alvarez et al. 1993; DeEll & Prange 1993; Bourn 1994; Woese et al. 1997; Alvarez et al. 2001; Bourn & Prescott 2002).

Cereal and legumes have been studied in a few comparative studies, with the most frequently checked parameters being the quantity and quality of protein content and changes according to cultivation system or fertilization, organic crops like wheat, rye, and corn contain less crude protein and no amino acids but a higher proportion of essential amino acids (Dlouhy 1977; Pettersson 1977; Chakhovskii 1981; Starling & Richards 1990;

Campbell et al. 1991; Starling & Richards 1993; Bourn 1994; Ragasits & Kismanyoky 2000). Regarding micronutrient content of grains and legumes, only selected vitamin B complex, vitamin C,  $\beta$ -carotene, Ca, P, Cu, Fe, Mn, and Zn have been examined found that organic production is a relatively new development, and many studies compare or evaluate organic and conventional animal products, such as milk, dairy products, eggs, and meat found that the main difference between organic and traditional production systems is the type of feed used, there are significant differences between organic dairy products and conventional dairy products, and it is important to eat with caution due to the impact of genetic differences between species and animals on food quality (Pabst 1994; Woese et al. 1997; Zangerl et al. 2000; Pirisi et al. 2002).

### **2.2.2 Certification of Organic Foods in Indonesia**

Standards for the application of organic processing systems have been released by Indonesia through the National Standardization Agency (SNI 6729:2016 Organic Agriculture Systems). In order to be applicable both on and off the farm, this standard makes reference to numerous international standards, such as the ASEAN Standard for Organic Agriculture, the USDA National Organic Program, the Codex Standard, the European Regulation (EU 2008 Regulation No 2092/91), and the IFOAM Basic Standards for Organic Production and Processing. With decades of experience in conformity assessment operations, including certification services, PT SUCOFINDO-International Certification Services (SICS) is one of Indonesia's first certifying bodies. Product certification ranges from organic to SNI and CB Scheme, and from GMP, HACCP, and ISO 22000 for food safety system certification. Figure 6 shows the official Indonesian Organic Logo (Figure 6).

**Figure 6 The Official Indonesian Organic Logo**





According to the Ministry of Agriculture Indonesia, several studies have investigated factors that motivate consumers to buy organic foods with logo written in the products to avoid trust issues (Teng & Wang 2015). The task of standardization and certification bodies is to improve the quality control system of organic products, increase market demand, support the implementation of internal control systems especially in smallholder farmer groups, and improve the image of the product on the market. With the development of organic farming, several organic farming regulatory bodies have also been established. First, in November 2002, the National Standards Organization/National Accreditation Committee (BSN/KAN) issued the National Standard for Organic Foods (SNI 01-6729-2002) based on the FAO/WHO Codex and IFOAM.

Second, the Agriculture Standardization and Certification Center (PSA) established the Organic Task Force (OTF) in September 2003. Its goal is to develop and support PSA in organic law. It comprised 4,444 stakeholders from government, academia, certification bodies, traders, NGOs, and producer organizations (Sucofindo 2024).

### **2.3 Consumers' Attitude towards Organic Foods**

Consumer attitude is the most important factor that influences consumer decisions. Attitude is also one of the most important concepts marketers use to understand consumers (Manongko 2018). There are several indicators of consumer attitudes towards organic food according to research by Kutresnaningdian & Albari (2020), namely organic food is healthier, organic food has superior quality, organic food is tastier, organic food is more attractive, organic food has no harmful effects and organic food has become fashion (trend). Organic foods are healthier, more natural, nutritious, and environmental concern than traditional foods (Aertsens et al. 2009). The more positive the attitude toward the behavior, the stronger the intention of the person to perform the behavior (Tarkiainen & Sundqvist 2005). Schaufele & Janssen (2021) confirmed that some factors such as health consciousness, environmental protection, food quality, and knowledge have a major impact consumers' attitude to purchase organic foods. Tandon et al. (2021) stated that consumers prioritize health and the environment, with a preference for healthy and hygienic food. In addition, Rana and Paul (2017) reported that consumers who have knowledge about organic foods prioritize maintaining a healthy lifestyle and diet, avoiding preservatives and taste enhancers, selecting healthy foods, avoiding polluting foods, and avoiding unhealthy options.

Attitudes against organic foods are measured using these indicators such as health, safety for long consumption, nature, and free of insect or pest (Suprpto & Wijaya 2012). One's concern for health and the environment are two upmost or principal common factors that are believed to factor into one's attitude toward organic foods. This attitude will then encourage the purchase of organic foods (Chen 2009). Squires et al. (2001) stated that consumers who have a positive attitude regarding the environment will intend to buy organic products and indeed has been an accurate predictor of behavior though the prediction is made through the purchase intention variable as well as ttitude behaviors the basis for the formation of intention.

## **2.4 Socio-economic Factors**

Attitude toward organic food seems to be influenced by the socio-demographic profile of consumers, including age, gender and education. In fact, women tend to have a more positive attitude toward organic food (Davies et al. 1995, Lockie et al. 2002; Radman 2005). The other hand, findings showed that men are more aware of organic food (Briz & Ward 2009; Kumar & Ali 2011). The increased interest among women in consuming this sort of food found in the current study supports the findings published by Annunziata & Vecchio (2016) in a study conducted in southern Italy. The authors discovered that 53% of organic food purchasers were women. Hempel & Hamm's (2016) survey of German consumers found that women have a larger preference for organic foods than males. This finding could be attributed to the female public's increased interest in maintaining a better lifestyle in order to reduce the risk of certain diseases, as well as concerns about lifespan (Pozzo 2012).

Moreover, men were found to be additional assured concerning their data concerning organic food (Aertsens et al. 2011). Stobbelaar et al. (2007) investigated studies that indicate soft values (e.g. environmentally friendly) appear to raise match female views which show women are usually more involved about health and healthy food. Vegetables and legumes can be underlined as the most consumed functional foods by men and women, followed by fruit, spices and soybeans, corn, and whole grains (Adalgisa et al. 2020). Adawiya et al. (2021) determined how customer preferences and awareness influence their interest in organic vegetables. Gorni, Gomes & Dreher (2012), who quantitatively analyzed the gender difference among university students in relation to consuming organic foods, as

a result mentioned that women are more concerned about this issue and, in general, the students showed awareness of healthy life. The previous study stated that the level of education (from secondary to Philosophy Doctor) can influence consumers to purchase organic foods. Uvalic Trumbic & Daniel (2016) found that education tends to improve behavior by involving people in many actions that promote environmental protection. More educated people are not only more concerned about the environment, but also more engaged in activism that promotes and supports environmental policy decisions. Consumers with higher education were more interested in purchasing organic food than those with education lower (Dettmann & Dimitri 2010). Most of the studies focused on the importance of demographic factors, but some studies showed conflicting results which indicated that purchase intention is slightly influenced by age and education level Yin, Wu, Du & Chen (2010).

Higher level education is a socio-economic dimension and is considered a predictor of organic foods consumption (Nasir & Karakaya 2014). Although most previous research indicated that the educational level of organic consumers was generally higher, Pestek et al. (2018) stated that the level of education would not influence the behavior of organic foods consumers in Bosnia.

Regarding the influence of family structure on organic foods consumption, previous studies have shown that marital status and children are predictors of organic foods purchase behavior. RongDa Liang (2014) stated that most organic consumers in Taiwan are married and have children. In major European capitals, the fact that children live in families has a major impact on the purchase of organic products Nasir & Karakaya (2014).

Moreover, it has been ascertained that if there are kids within the family, then there is a positive and direct impact on the attitude and purchasing behavior towards organic foods. Also, presence of kids whereas looking within the grocery will modify the purchasing selections of the parents after they are shopping during a supermarket (Essoussi & Zahaf, 2008; Davies et al. 1995; Robert Maynard Hutchins & Greenhalgh, 1995, Thompson & Kidwell 1998). Households with higher financial gain are additional doubtless to own favorable attitudes and intention to purchase for organic food (Grunert and Kristensen, 1991; Von Alvensleben, 1998). According to Maria L et al. (2001), age affects the purchase of organic goods. For example, Misra et al. (1991) found that elderly people are more likely to purchase organic foods for health reasons. However, Cranfield & Magnusson (2003) discovered that younger customers are more willing to spend almost 6% more premiums to ensure pesticide-free food goods. Rimal et al. (2005) reported that

older people are less inclined to purchase organic foods than younger people. Younger people and women, on the other hand, value organic foods and include them in their purchasing. Meanwhile, females with children under the age of 18 and a small home size are revealed as a key factor in explaining consumer choices for organic foods (Loureiro et al. 2001).

Income is another demographic variable that is thought to be important in affecting the buying of organic food. According to two studies conducted by Govindasamy and Italia (1990) and Loureiro et al. (2001), higher-income households are more likely to purchase organic products. Likewise, Voon et al. (2011) discovered a positive relationship between household income and organic food purchases. Furthermore, women aged 30-45 with children and a larger discretionary income purchase organic foods. Stolz et al. (2011) found that higher income is significantly associated with a consumers' preference for purchasing organic foods and conventional plus (products classified as 'in between' organic and conventional products, or food products with specific attributes that also apply to organic products). Gracia and Magistris (2008) reported that lower-income consumers are less likely to buy organic goods, which has an impact on organic food choice in southern Italy.

## **2.4.2 Health Concern**

Health consciousness is an important component in the conceptual model of healthy behavior and has been used to explain changes associated with healthy behavior. Health awareness is a concern for becoming better and motivated in improving, maintaining health and quality of life by implementing a healthy lifestyle. There are dimensions of health awareness, namely concern for health, high attention that food intake affects health, appreciation for healthy and natural food, and efforts to choose healthy food (Kutresnaningdian & Albari 2020). Weiss & Venkataramani Johar (2016) reported that purchasing organic food associated with health problems was a wise decision. According to Mei Ling & Piew 2012 stated that health concern is the main factor consumers purchase organic foods due to higher quality and believe that organic foods are healthier than conventional foods as well as the highest motivations for consumers to buy organic foods, nowadays, consumers are highly concerned about health issues. Referring to the theoretical concept, this factor is named as "freedom from chemicals" which is defined as the consumer beliefs about the safety and healthy aspect of organic food (Devcich, Pedersen & Petrie 2007). Regarding to Chen et al. (2014) found that food

safety is a major concern for consumers regarding personal health issues. As a result, it enables them to consume the food without any worries or suspicion (Suh, Eves & Lumbers 2012).

Indonesian consumers are currently increasingly open to information, where consumers can obtain information and news more quickly because it is supported by technological developments. Adrian & Irawan (2020) defined health awareness as an attitude where people realize the importance of health in their food and lifestyle. So that an event can attract the attention of the wider community. For example, the issue of using formaldehyde in noodles causes consumers to become concerned about their health and be careful when buying food. Meanwhile, according to Lismanizar & Utami (2018) and Watanabe et al. (2020) stated that food safety and quality knowledge has increased the demand for organic food consumption behavior. Sue et al. (2022) confirmed that healthy foods was the main concern and is critical motivation to purchase organic foods and the more they are conscious of health, the more positive attitude they have towards organic food (Chakraborty et al. 2022). Negaraj (2021) found that the role of consumer health awareness, food safety and attitude have a relationship that influences consumers to consume organic foods.

Health concern in young people may be different from that of older people, especially regarding perspectives on food consumption patterns. Various studies conducted in various countries and analyzing the factors that influence the purchase of organic food, found that health-conscious consumers show a preference for consuming organic plant foods over conventionally grown foods (Zainal 2020). Young people generally still do not know and pay attention to the importance of health awareness. Meanwhile, older people usually know more about and pay attention to the importance of health awareness. That way, they want healthy, nutritious food intake to maintain the health of their bodies which are increasingly susceptible to disease, for example by consuming organic food (Kutresnaningdian & Albari 2020). Health awareness promotes comprehensive health, motivating individuals to improve their quality of life through a healthy lifestyle. Consuming organic food is often viewed as safer and more beneficial than conventional alternatives Kutresnaningdian & Albari (2020). The perception of whether food is healthy or not for consumers is one of the motivations that can influence their purchasing decisions, this can be one of the indicators of health awareness (Lismanizar & Utami 2018).

### **2.4.3 Consumers' Knowledge**

In consumers' behavior research, the information search stage of the decision-making process usually starts with internal search. It refers to the internalized information that consumers use when making decisions (Kolyesnikova et al. 2010). The market information of organic products is very important because it can positively influence consumers' attitude toward organic products, and it can also increase consumer awareness (Briz & Ward, 2009; Gil & Soler 2006). Knowledge about organic foods is mostly direct to consumers' perspective and awareness of various factors related to organic food products and the organic farming practices used to produce them (Eyinade et al. 2021). Consumers' knowledge plays an important part in creating perceptions and attitudes toward purchasing organic foods (Jensen et al. 2019; Rodríguez-Bermúdez 2020). Those with higher knowledge tend to choose organic foods than conventional foods (Hochstein et al. 2019). Similarly with the previous study, Ayyub et al. (2018) confirmed that experience and knowledge can influence the attitude of consumers in buying organic food. Consumers who have more knowledge are more likely to recognize and value the health benefits of organic products and enhance their positive attitude towards purchasing organic foods (Nguyen et al. 2019).

Smith & Paladino (2010) confirmed that consumers' knowledge about social and environmental issues has a positive impact on their attitude toward organic products and their purchasing behavior. Singh & Verma (2017) and Effendi et al. (2015) also confirmed that knowledge affects consumers' attitude toward organic foods. Magistris & Gracia (2008) revealed that the intention of buying organic products is related to knowledge. Gracia, Magistris, & Barreiro-Hurle (2010) and Gracia & Magistris (2007) also found that knowledge about organic products is important and thus affects the intention of buying organic foods. Apart from that, organic products are considered safer (food safety) by consumers and the public because they are produced without using synthetic pesticides and synthetic fertilizers and are in harmony with nature and follow organic principles. It is not recommended to spray pesticides on food such as vegetables and fruit in the garden, because it can cause poisoning and food must be truly safe, because it can cause poisoning, even mass. Starting from how to plant, transport, process, serve and store food (Utami 2015). Knowledge of food safety is the most important consideration when making purchasing decisions. The lack of knowledge was considered as one factor of the leading barriers for consumers not purchasing organic foods (Aertsens et al. 2011). Other

than a lack of knowledge regarding organic foods, the key obstacles of organic food purchases are the following: high price premiums, lack of organic food availability, skepticism of organic certification, insufficient marketing, satisfaction with current food sources and sensory defects (Hoffmann & Wivstad 2015).

The concepts of food safety along with food quality and authenticity have been developed during the evolution of large-scale food production systems to protect consumers from risks, while certification systems have been developed to build trust and validate these concepts in practice (Cristina et al. 2018). Kutresnaningdian & Albari (2020) reported that food safety is a condition and effort necessary to prevent food from possible biological, chemical and other contamination that can disturb, harm and endanger human health. Lack of knowledge and understanding of food industry entrepreneurs, especially home industries and small industries, is one of the factors that influences food safety guarantees. Knowledge was identified as an important factor in determining organic foods consumption. A study by Stolz et al. (2011) showed that consumers who chose organic products were likely to be more knowledgeable about food ingredients (compared to consumers who chose conventional foods), normally people consume it based on experience.

#### **2.4.4 Environmental Concern**

Environmentally friendly products involve all product elements, starting from the raw materials used, production processes, product packaging, handling pollution waste, and others (Mahmoud 2018). Environmentally friendly products are commodities that have the characteristics of energy saving, recyclable, low emissions and healthy. This product is produced through an environmentally friendly process so it is longer lasting, free of toxins, and minimizes the impact on the environment. Ansu-Mensah (2021) reported that environmentally friendly products use fewer natural resources, minimize environmental damage, and have the ability to guarantee environmental protection. Eco-friendly products help maintain and improve the environment, conserve energy resources, and reduce toxic materials, pollution, and waste (Agarwal 2020). Eco-friendly products are made from materials that are safe for the environment, can be recycled, and use less packaging, thereby preserving the environment. Consumers usually understand that the products they buy will have an impact on the environment in making decisions to buy friendly products (Tan *et al.* 2019).

Basha et al. (2015) confirmed that one of the most important motivating factors and reasons why consumers buy products including organic products is concern for the environment. The environmental concern has an impact on purchasing organic products in various countries such as Australia (Pearson et al. 2013), India (Basha et al. 2015), Thailand (Sangkumchaliang & Huang 2012; Ueasangkomsate & Santiteerakul 2016) and Romania (Oroian et al. 2017). The study by Honkanen, Verplanken, & Olsen (2006) also revealed that environmental concern has a strong influence toward attitude.

Based on the study by Basha et al. (2015), protecting the environment is one of the most common reasons consumers buy organic products. Considerable researchers have investigated the attitude consumers have toward organic foods and that they have observed three essential elements. Organic foods are seen as healthier, environmental concern, and tastier than traditional foods. However, it is being argued that even if consumers have a positive attitude toward organic foods the number of consumers who regularly purchase organic foods is low (Aertsens et al. 2009). These previous researchers found that when consumers are concerned about environmental issues, they generally tend to reduce their impact on the environment (Molionillo S et al. 2020; Huang H et al. 2020). Expanding conscious consumer behavior, such as science-based sustainable food consumption, can be a response to global challenges. Willett et al. (2019) stated that recommendations for sustainable and environmentally friendly diets, known as “planetary health diets”, are becoming increasingly popular. This finding suggests that consumers are more concerned with environmental issues and consider environmental impacts in their purchasing decisions due to protecting the environment (Molionillo S et al. 2020; Prentice C et al. 2019). According to the previous studies, they stated that customers are concerned about the use of chemical fertilizers and pesticides in the soil, which indirectly affects people's health, and that consumers are cautious in their food consumption behavior in this regard Hassaan & Nemr (2020). Michalikova et al. (2022) stated that social and environmental norms have increased consumer awareness which has resulted in positive perceptions among customers towards the adoption of organic food products as well as developing a sense of responsibility towards the environment. Consumers become more concerned about environmental issues, marketing strategies based on “green”, or “environmentally friendly” products have emerged (Kim & Choi 2005). In contrast, previous study by Zakowska-Biemans (2011) confirmed that although folks know the importance of environmental protection and animal welfare, it’s not relevant to the organic purchase decision. Surprisingly, environmental concern does not significantly



alter attitudes towards organic foods, which contradicts several previous research findings (Le-Anh & Nguyen-To 2020). Yue et al. 2020 confirmed that organic foods consumption not only affects consumers to become healthy but also influences environmental protection.

Furthermore, the increase in the production of environmentally friendly raw materials as well as the composition of diets is an important aspect, leading to an increase in the environmental consciousness of European consumers over the past decade. Lacour et al. (2018) informed that organic farming as an alternative model is of particular interest as it has been demonstrated that people in Western Europe who consume large amounts of plant-based products also consume more organic foods. They are increasingly interested in conscious consumption and the environmentally friendly nature of products and are more willing to pay for organic products (Wägeli et al. 2016; Schäufele & Hamm 2017; Katt & Meixner 2020). According to a meta-analysis by Li & Kallas (2021), consumers pay on average 29.5% more for sustainable products compared to conventional products. This is because one of the obstacles in developing organic food is the failure to maintain market confidence in the authenticity of organic products that are truly environmentally friendly (Ueasangkomsate & Santiteerakul 2016). Huo et al. (2024) confirmed that this failure is reflected in the behavior of consumers who are reluctant to buy organic products and even prevent consumers from buying organic products that are not truly environmentally friendly. This showed people's confidence regarding the attributes and benefits of organic products (organic vegetables) which have not been able to meet their needs and create satisfaction in the minds of consumers (Cahyarani 2018).

## **2.5. Purchase Intention toward Organic Foods**

Purchase intention is part of consumer behavior in terms of consumption attitudes, the respondent's tendency to act before the purchase decision is implemented, it is very important to examine consumers' purchase intention for organic foods by Ghalandari & Norouzi (2012). Iltiham & Nizar (2020) supported that purchase intention or buying interest is the consumers' tendency to consume something according to the purchase and determines the possibility of the consumer making a purchase or not. As with organic products, purchase intention can be influenced by various elements, such as health awareness, environmental awareness, product availability, product distribution, perceptions of product quality and others. Bhavsar et al. (2018) confirmed that consumers

with low incomes are not willing to pay more for organic foods. Melovicetal (2020) stated that respondents who chose organic products were willing to pay a price premium to obtain organic food and ensure food quality. While Rana & Paul (2012) stated that health is not the only factor that can affect consumer purchase intention, but also quality of a particular food. Iyer, Davari & Paswan (2016) confirmed that the relationship between purchase intention and other variables such as price, attitude, health awareness is important and awareness to protect the environment. Purchasing interest can be said to be a model of a person's attitude towards goods objects which is very suitable for measuring attitudes towards certain groups of products, services, or brands (Sumarwan 2014). However, nowadays many consumers are becoming aware of the environment, and it is one of the factors in their intention to buy healthier food, namely organic foods, this result is also confirmed by Yadav & Pathak (2016) in buying green or organic products. Liang (2016) investigated relationships between organic foods purchase intention and properties, certification, distribution, and the price of these products. He noted that factors such as certification, nutritional value, and environmental protection had a positive impact on purchase intention. As for the price, where organic products are cheaper, consumers are more concerned with product certification. Therefore, consumers emphasize trust in the store or supermarket where the product is purchased. Mainardes, Araujo, Lasso & Andrade (2017) in a study conducted in Brazil, studied the relationship between personal values and attitude with intention to purchase organic foods products, and found a positive effect of value associated with organic foods. Conservatism, self-promotion, and openness to changes in purchasing behavior toward these types of food. Therefore, it is important to understand the intention to buy organic foods. The most relevant aspects identified here are consumer trust, the perceived value of the product, as well as its attributes. For this reason, as explained above, there are several factors of consumer purchase intention, such as: health, knowledge, and protecting the environment. Stolz et al. (2011) found that consumers who chose organic products were willing to pay a price premium to obtain organic food and ensure food quality. However, according to Ghali-Zinoubi & Toukabri (2019) reported that organic products are expensive compared to conventional products.

The overview of all factors that can influence organic foods consumption is provided in Table 1.

**Table 1 Summary of factors that can influence organic foods consumption**

Type	Factors	Key findings	Country	References
<b>Socio-economics Factors</b>	<b>Age</b>	Younger consumers are more likely to pay over % higher premiums to ensure that food products are pesticide-free	Georgia	Misra et al. (1991)
		Consumers of organic foods appear to be mostly young-aged people	UK	Rimal et al. (2005)
		Women are usually more involved about health and healthy foods.	Serbia	Grubor & Djokic (2016)
	<b>Gender</b>	Women prefer to purchase organic vegetables more than men	Belgium	Stobbelaar et al. (2007)
		Consumers with higher education prefers organic food than those with education lower	Indonesia	Adawiya et al. (2021)
	<b>Education</b>	Education tends to improve behavior by involving people in many actions	United States	Dettmann & Dimitri (2010)
Level of education would not influence the behavior of organic foods		France	Uvalic Trumbic & Daniel (2016)	
<b>Household Size</b>	Most organic consumers are married and have children	Bosnia	Pestek et al. (2018)	
	The fact that children live in families has a major impact on the purchase of organic products	Taiwan	RongDa Liang (2014)	
	Higher-income households are more likely to purchase organic products	Indonesia	Nasir & Karakaya (2014)	
<b>Factors that can influence organic foods consumption</b>	<b>Income</b>	Higher-income households are more likely to purchase organic products	Italy	Loureiro et al. (2001)
		Attitude against organic foods is measured using these indicators: health, safety, nature and free of insect or pest	Malaysia	(Voon et al. 2011)
		Attitude is also one of the most important concepts used to understand consumers	Germany	(Stolz et al. 2011)
	<b>Consumers' Attitude</b>	Health concern are critical motivation for organic product consumption	Indonesia	Suprpto & Wijaya (2012)
		Health awareness is a concern for improving healthy lifestyle	Indonesia	Manongko (2018)
	<b>Health Concern</b>	Health-conscious consumers was found as factor of Purchasing organic foods	Indonesia	Kutresnaningdian & Albari (2020)
Knowledge about organic products is important and thus affects the intention of buying organic foods		Sweden	Magnusson et al. (2003)	
<b>Consumers' Knowledge</b>	Knowledge about organic products is important and thus affects the intention of buying organic foods	Indonesia	Lismanizar & Utami (2018)	
	The environmental concern has an impact on purchasing organic foods	Indonesia	Zainal (2020)	
	Consumers are concerned about environmental issues, they generally tend to reduce their impact on the environment	Italy	Magistris & Gracia (2008)	
<b>Environmental Concern</b>	Eco-friendly products help maintain and improve the environment	India	Effendi et al. (2015)	
	Environmentally friendly products are energy saving, recyclable, low emissions and healthy	Indonesia	Singh (2017)	
	Consumers who chose organic products were willing to pay a price premium	Australia	Pearson et al. (2013)	
	Personal values with intention to purchase found a positive effect of value associated with organic foods	China	(Molionillo S et al. (2020) ; Huang H et al. 2020)	
<b>Purchase Intention</b>	Purchase intention of organic products can be influenced by various elements, such as health awareness, environmental awareness, product availability, product distribution, perceptions of product quality and others.	India	Agarwal (2020)	
		Ghana	Ansu Mensah (2021)	
		Germany	Stolz et al. (2011)	
		Brazil	Mainardes, Araujo, Lasso & Andrade (2017)	
		Indonesia	Iltiham & Nizar (2020)	

### **3. Aims of the Thesis**

As previously mentioned in the literature review chapters, there are several factors that can influence consumers' attitude towards purchasing organic foods. This study examined socio-economic factors, health concerns, consumers' knowledge and environmental concerns influencing purchasing intention towards organic foods by young consumers in Indonesia. Respondents were divided into two groups as regular consumers and non-consumers to find out their purchasing intention towards organic foods. The target group was students from the University of Sumatera Utara and Wilmar Business Indonesia University in Medan, North Sumatra, Indonesia. The main aim of this research was to investigate consumers' attitudes towards purchasing organic foods and the factors that influence their intentions. The following research questions were formulated:

1. Which organic products are preferred by the consumers in terms of gender perspective?
2. Which factors influence the motivation to consume (or not consume) organic foods by consumers and non-consumers?
3. Which factors influence the attitudes and intentions of consumers to buy organic food?

The following research hypotheses were developed:

- H1: Health concerns positively influence consumers' attitude towards organic foods (Sue et al. 2022; Chakraborty et al. 2022; Negaraj 2021; Lismanizar & Utami 2018; Zainal 2020).
- H2: Consumers' knowledge positively influence consumers' attitude towards organic foods (Eyinade et al. 2021; Jensen et al. 2019; Rodríguez-Bermúdez 2020; Nguyen et al. 2019).
- H3: Environmental concerns positively influence consumers' attitude towards organic foods (Yue et al. 2020; Molionillo S et al. 2020; Huang H et al. 2020; Agarwal 2020; Ansu Mensah 2021).

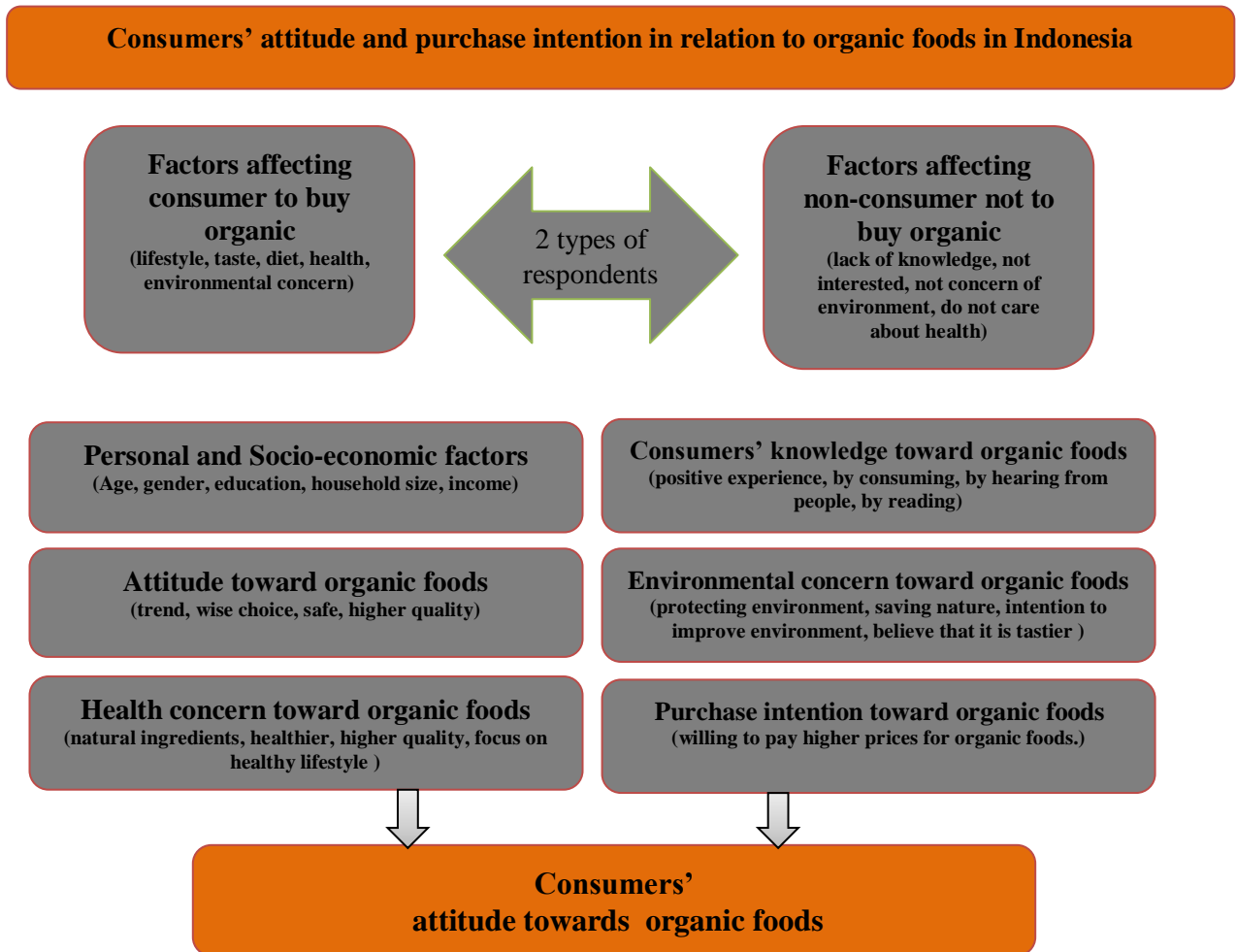
## **4. Methodology**

### **4.1 Conceptual Design**

The quantitative data of this research were collected through a questionnaire-based consumer survey. This type of research was descriptive quantitative research with a cross sectional approach. This study analyzed the influence of consumers' attitude, health, knowledge, and environmental friendliness on purchase intention for organic foods in Indonesia. The conceptual design of consumers' attitudes towards organic foods was formed in Figure 7.

Consumers' attitude towards organic foods is directly influenced by six categorical factors. The first factors were socio-economic factors such as age, gender, education, household size and income. The factors health concerns, consumers' knowledge, and environmental concerns were identified as independent variables which have been linked to the dependent variable (attitude) to determine the relationship in influencing consumers to buy organic foods. The data were collected from December 2021 until January 2022 in the city of Medan. The questions were divided into six parts. The first part discusses whether they are organic food consumers or not. The second part was dedicated to health concerns toward organic foods. The third was focused on knowledge concerning organic foods. The fourth part included environmental concerns toward organic foods. The fifth part was about purchase intentions associated with each factor. Total of 16 questions were asked. An example of the questionnaire is attached in Annex 1.

**Figure 7 Conceptual Framework of consumers' attitude toward organic foods**



## 4.2 Study Area

The research was conducted in the city of Medan, Province of North Sumatera, Indonesia. The city of Medan as the capital of North Sumatra Province is the largest city in the eastern region of the island of Sumatra. The area of Medan City is directly adjacent to Deli Serdang Regency in the West, East, South and the Malacca Strait in the North. Administratively, Medan City consists of 21 sub-districts. The results of the 2023 Population Census showed that the population of Medan City reached 2,494,512 . In detail, 1,242,313 people are male and 1,252,199 are female according to Medan City Central Statistics (2022).

In the national urban system, the City of Medan has been designated as the National Activity Center (PKN). In the 2015-2019 RPJMN, the City of Medan is included

in the Metropolitan Urban Area of Mebendaro and is directed as a global-scale National Activity Center (PKN) which is directed as a border crossing administration center that functions as a marketing outlet for the eastern part of North Sumatra while continuing to strengthen its functions linkages with international regional growth centers. The city of Medan is also included in the National Strategic Urban Area of Mebendaro.

### **4.3 Data Collection**

Primary and secondary data were used for the study. The primary data was collected through a questionnaire-based survey from local consumers from middle of December 2021 until January 2022.

The data collection was mainly distributed to the public using an online questionnaire which was developed using Google Form. The study used both convenience sampling and snowball sampling. Due to covid situation, the online questionnaire was sent out via two main channels, online social networks namely Facebook and Telegram. The respondents were selected among the students at two selected universities in the city of Medan, North of Sumatra, Indonesia, in the age group between 17 to 25. Nowadays, young people are considering purchasing organic foods and also starting to be aware of health and environmental concerns related to consuming organic foods. The universities were the University of Sumatera Utara located in Medan and Wilmar Business Indonesia University located in North Sumatra. In total, we have collected data from 142 respondents. In this study, an online questionnaire was the tool to collect the firsthand data to fulfill the goal since it is the most effective way to reach the respondents within a limited time and costs. This data collection method was inspired by previous study in the same area that investigated factors influence towards consumer attitude by formulating hypotheses. Furthermore, based on the research question survey was the most suitable data collection method since the purpose of this study was to investigate the relationship between different variables.

In contrast, secondary data was collected from databases, internal statistics of organizations, websites, libraries, etc. Compared with primary data, secondary data is inexpensive and time saving. Secondary data is part of the research in which scientific articles and journals which are mainly from the Web of Science, Google Scholar, Scopus and ScienceDirect for discussion and compilation of the results of the study. Due to the inconvenience caused by the interviewee's accessibility, this research was conducted on

the Internet using hands-on samples and snowball samples. This research strategy ensures adequate responses within a limited time and financial resources. Convenience sampling method with snowball sampling method will be selected. The study by Goodman (2011) described snowball sampling as the method designed particularly with the aim of estimating statistically social structure in the certain population of interest. From some perspective, snowball sampling can be considered as a form of convenience sampling (Bryman & Bell 2007). The source of data collection used was based on primary and secondary data.

#### **4.4 Data Analysis**

This research applied quantitative methods using IBM SPSS 2024 version 29. For quantitative research, various quantitative data analysis based on SPSS software was used to analyze the data. This study applied descriptive statistics, validity, reliability, cross tabulation and a linear regression analysis were conducted on the significance level and fitted R-squared. The data were processed in MS Excel to clean and code it before the data was ready to analyze.

To find out the percentage of characteristics the respondents were divided into two categories as consumers and non-consumers of organic food. In socio-economic factors there were gender, education, and household size. Respondents frequently purchase daily, once a week, 2-3 even 4-6 times a week, a few months and year and never buy at all. Places where the respondent purchasing organic foods are in the supermarket, vegetables market, special store, online, at organic farms and other places. The main motivations of consumers to buy organic foods are lifestyle, taste, diet, health, and concern about the environment as well. On the contrary, expensive, lack of knowledge, not interested, not care about the environment and do not like the taste were stated as the main reasons to not consume organic foods based on non-consumers perspectives. Cross Tabulation was used to analyze these factors: socio-economic variables, purchase frequency, purchase reasons and places of purchasing organic foods. To find out which organic products are preferred to the consumers in terms of gender, the scale of percentages was chosen. The scale represented the following statements: 1=81-100 %, 2= 61-80 %, 3= 41-60 %, 4= 21-40%. 5= 0-20 %. This scale was chosen because of its simplicity to understand for both the respondents. Descriptive statistics was done to analyze these factors, means and standard deviations were calculated to assess the responses. To determine if there was a



statistically significant difference between two percentage scales of means, the statistical test of Wilcoxon matched pairs test was used. The Kruskal- Wallis test was used to determine if there is statistically significant difference in the case when we were testing more than two means. Given the confidence level of 95%, if the p- value is under 0.05 it can be stated that the difference between the means is statistically significant.

To assess factors influencing motivation of consumers and non-consumers attitude and intention towards purchasing organic foods, a 5 scale Likert scale was chosen. The scale represented the following statements: 1=Strongly agree, 2= Agree, 3=Neither agree nor disagree, 4= Disagree, 5=Strongly disagree. Means and standard deviations were to assess the response. To determine if there was a statistically significant difference between two Likert scale means, the statistical chi-pearson correlation test was used, if the p-value is under 0.05 it can be stated that the difference between the means is statistically significant.

To determine which factors of consumers have a significant influence to consume organic foods, the researcher found three hypotheses as the following: H1: Health concerns positively influences consumers attitude towards organic foods, H2: Knowledge positively influences consumers attitude towards organic foods, H3: Environmental concerns positively influences consumers attitude towards organic foods.

Multiple linear regression was used to analyze the factors influencing the organic food consumption. The respondents evaluated their attitudes via 5 scale Likert scale which represented the following statements: 1= Strongly agree, 2= Agree, 3=Neither agree nor disagree, 4=Disagree, 5= Strongly disagree. Before conducting research, validity and reliability tests are very important to ensure that the variables used can produce accurate and reliable results. According to Ghazali (2009) stated that the validity test was used to measure whether a questionnaire is valid or not, if the correlation value is under 0.8 or 0.9, the validity is ensured Based on Sugiharto & Sitinjak (2006) stated that a reliability test is used to measure that the variables can be trusted as data collection tools and are able to reveal actual information in the field. If the alpha value  $> 0.6$  means sufficient reliability, while if  $\alpha > 0.7$  this suggests all items are reliable and all tests consistently have strong reliability. To get rid of question errors, Skewness and Kurtosis are needed to be checked. Ghazali (2018) confirmed that the value received must be between -2 and +2 and it can be concluded that the data is normally distributed. Lastly, Multiple Linear Regression Analysis is a statistical procedure to investigate the relationship between two or more variables. Regarding the level of significance, it is used to determine whether the

hypothesis is accepted or rejected. If the value (P-value) is greater than 0.05, the hypothesis will be rejected. Rather, p-value is less than 0.05, the hypothesis will be accepted. In terms of Adjusted R Square, it is the percentage that the dependent variable can be explained by the independent variable Bryman & Bell (2007). Based on the results of the analysis in the standardized coefficients, the multiple linear regression equation is as follows:

$$Y = 0.298 \cdot X_1 + 0.275 \cdot X_2 + 0.197 \cdot X_3.$$

Where Y: Consumers' Attitude,  $X_1$ : Health,  $X_2$ : Knowledge, and  $X_3$ : Environmental Concern

**Table 2. Variable factors to measure the level of significance of consumption organic foods analysis**

<b>Item</b>	<b>Statement</b>	<b>Scale</b>
<b>Health concern</b>	1. I believe that organic foods contain more natural ingredients than conventional foods	1 = Strongly agree,
	2. I believe that organic foods are healthier than conventional foods	2 = Agree,
	3. Organic foods have a higher quality.	3 = Neither agree nor disagree,
	4. Health concern are the most common motives for consumers' purchase of organic foods.	4 = Disagree,
<b>Consumers' knowledge</b>	1. My knowledge about organic foods is sufficient.	5 = Strongly disagree
	2. My knowledge about organic foods is based on previous experience such as purchasing/consuming/hearing from others/reading about it.	1 = Strongly agree,
	3. Overall, I have a positive experience/impression about consuming organic foods.	2 = Agree,
	4. Knowledge is a key factor affecting consumers' behavior in buying organic products.	3 = Neither agree nor disagree, 4 = Disagree, 5 = Strongly disagree
<b>Environmental concern</b>	1. I pay a lot of attention to the environment.	1 = Strongly agree,
	2. The environmental aspect is very important in my food choice.	2 = Agree,
	3. I believe organic foods consumption contributes to protecting the environment.	3 = Neither agree nor disagree, 4 = Disagree,
	4. Environmental concern has a strong influence toward attitude	5 = Strongly disagree
	5. Protecting the environment is one of the most common reasons consumers buy organic products	
	6. Organic foods are seen as healthier, environmental concern, and tastier than traditional foods.	
<b>Purchase intention</b>	1. I am willing to pay up to 5% higher prices for organic foods.	1 = Strongly agree,
	2. I am willing to pay 6-10% higher prices for organic foods.	2 = Agree,
	3. I am willing to pay 11-15% higher prices for organic foods.	3 = Neither agree nor disagree, 4 = Disagree,
	4. I am willing to pay >15% higher prices for organic foods.	5 = Strongly disagree
<b>Consumers' attitude</b>	1. I think organic foods is a trend	1 = Strongly agree,
	2. Purchasing organic food is a wise choice	2 = Agree,
	3. Organic foods have a higher quality	3 = Neither agree nor disagree, 4 = Disagree,
	4. Organic foods are safe for long-term consumption	5 = Strongly disagree

## **5 Results**

### **5.1 Characteristics of the respondents**

Respondents were divided as consumers and non-consumers of organic food. Most of the respondents were female with 67.6% and male with 32.4%. Similar trend is apparent between the biggest difference being non-consumers with 68.2 % of them being female and the smallest difference being consumers with 67.3 % of them being female. The education question was divided into four categories of the study disciplines offered at the selected universities: Natural sciences, Social sciences, Humanities and Agriculture. Most of the consumers with the highest percentage were Social sciences with 34.7 % and non-consumers was Agriculture with 36.3 %. Most of the respondents were from 3-4 or 5-6 members' households with 42.3 % from 3-4 and with 35.2% from 5-6 members' households. Same trends are apparent of being consumers and non-consumers categories.

In terms of purchase frequency of organic consumption, the data shows that the most consumers with 30.6 % purchase organic foods daily and vice versa, most non-consumers with 38.6 % purchase organic foods a few times a year. Most of the respondents purchase organic foods in the supermarket with 53.5 %. Similar trends are apparent of being non-consumers with 59.1 % as the biggest difference and the smallest difference being consumers with 51 %. As regards to being the main motivation to consume and not to consume, the main reasons in terms of the purchase of organic foods found that the highest main motivation of the consumers was awareness of health with 83.7% and non-consumers found that expensive with 56.8% was the main reasons for not consuming organic foods. Unfortunately, slightly different trends are apparent in these categories. More detailed data of the respondents' socioeconomic factors, purchase frequency, purchase reasons and places of purchasing organic foods are presented in the following sub-chapters. Table 3 provides the overview of the respondents characteristics.

**Table 3. Socio-economic characteristics of the respondents and their purchasing attitudes**

<b>Variable</b>	<b>Total Sample N=142 %</b>		<b>Consumers N=98 %</b>	<b>Non-consumers N=44 %</b>
<b>Gender</b>				
Female	96	67.6	67.3	68.2
Male	46	32.4	32.7	31.8
<b>Education</b>				
Natural sciences	43	30.3	31.6	27.3
Social sciences	42	29.6	34.7	18.2
Humanities	20	14	12.2	18.2
Agriculture	37	26.1	21.5	36.3
<b>Household Size</b>				
1-2	15	10.6	12.2	6.8
3-4	60	42.3	37.8	52.3
5-6	50	35.2	34.7	36.4
>7	17	11.9	15.3	4.5
<b>Purchase Frequency</b>				
Daily	31	21.8	30.6	2.3
Once a week	8	5.6	1	15.9
2-3 times a week	25	17.6	18.4	15.9
4-6 times a week	17	22.5	29.6	6.8
A few times a month	24	16.9	15.3	20.5
A few times a year	17	12	0	38.6
Never	5	3.6	5.1	0
<b>Channel of Distribution</b>				
In the supermarket	76	53.5	51	59.1
In the vegetable market	19	13.4	16.3	6.8
Specialty stores	20	14.1	15.3	11.4
On the internet (Online)	5	3.6	5.1	0
At organic farms	11	7.7	7.1	9.1
Others	11	7.7	5.2	13.6
<b>Main motivation to consume</b>				
Lifestyle	4	2.8	4.1	-
Taste	3	2.1	3.1	-
Diet	4	2.8	4.1	-
Health	82	57.7	83.7	-
Environmentally friendly	5	3.6	5	-
<b>Main motivation to not consume</b>				
Expensive	25	17.6	-	56.8
Lack of knowledge	6	4.2	-	13.6
I am not interested	5	3.6	-	11.4
I do not concern about environmentally friendly	2	1.4	-	4.6
I do not like the taste	6	4.2	-	13.6

## 5.2 Organic Foods Consumption

To find out which organic products were preferred to the consumers in terms of gender, the scale of percentages was chosen. The consumption of organic foods was examined through asking about vegetables, fruits, eggs, meat, milk, grain and beans, and tea and coffee products with respect to gender based on consumers. The data collected from the questionnaire showed that most of the respondents preferred vegetables ( $M = 2.38$ ) and the lowest was tea and coffee ( $M = 3.17$ ). In terms of organic products, the data showed that the highest consumption from females was fruits ( $M = 2.30$ ), and the difference trend is apparent from male with the highest consumption product was vegetables ( $M = 2.50$ ). Similar trends are apparent in terms of tea and coffee products preferred to gender with the lowest rank being consumers ( $M = 3.24$ ) of them female and ( $M = 3.17$ ) of them being male.

There was a statistically significant difference in means in the case of the respondents in terms of consumers organic products were preferred to gender for vegetables, fruits, milk, eggs, and meat, while there was no statistically significant difference in means for grain and beans as well as tea and coffee (Table 4). More detailed data of organic products are preferred to the consumers in terms of gender by the respondents are presented in the following sub-chapters.

**Table 4. Organic products preferred by the consumers**

Variable	N	Total		Female		Male		p-value
		M	SD	M	SD	M	SD	
Vegetables	98	2.38 ± 1.16		2.32 ± 1.19		2.50 ± 1.10		<b>0.001</b>
Fruits	66	2.46 ± 1.20		2.30 ± 1.18		2.75 ± 1.19		<b>0.001</b>
Milk	32	2.58 ± 1.04		2.56 ± 1.11		2.66 ± 0.90		<b>0.015</b>
Eggs		2.67 ± 1.19		2.62 ± 1.22		2.78 ± 1.15		<b>0.028</b>
Meat		2.53 ± 1.19		2.39 ± 1.14		2.81 ± 1.25		<b>0.005</b>
Grain & Beans		2.90 ± 1.12		2.91 ± 1.13		2.88 ± 1.12		0.157
Tea & Coffee		3.17 ± 1.17		3.24 ± 1.21		3.17 ± 1.09		0.655

Notes: p= p-value of Wilcoxon matched paired test, M = Mean, SD = Standard Deviation,

Scale: 1=- 81-100 %, 2=- 61-80 %, 3=- 41-60 %, 4=- 21-40%. 5=- 0-20 %.

### **5.3 Factors Determining of Consumers and Non-consumers Motivation towards Purchasing Organic Foods.**

To assess factors influencing motivation of consumers and non-consumers attitude and intention towards purchasing organic foods, The most important factors in terms of determining consumers and non-consumers attitude and intention towards purchasing organic foods, ranked accordingly to their means were health concerns are the most common motives to purchase organic foods (1.78) as the highest variables, followed by organic foods have a higher quality (1.80). The other factors showed similar trends are apparent in terms of safe for long term consumption, impact on health and knowledge can influence buying organic food with the same means (1.85) and the lowest variables was willing to pay > 15% higher prices for organic foods (3.19), it means that all respondents are not interest to buy costly organic foods.

The most important factors in terms of determining consumers attitude and intention towards purchasing organic foods, ranked accordingly to their means were health concerns are the most common motives to purchase organic foods (1.63) as strongest variable, followed by organic foods have a higher quality (1.66) from the same trends in terms of health concern factors, these variables: believe that organic foods are healthier than conventional foods and organic foods have a higher quality with the same means (1.67) but from different trends factors categories, and the weakest variables was willing to pay > 15% higher prices for organic foods (3.02)

The most important factors in terms of determining non-consumers attitude and intention towards purchasing organic foods, ranked accordingly to their means were knowledge is a key factor affecting consumers behavior in buying organic products and organic foods are safe for long term consumption have same trends apparent in terms of factors consumers' attitude and consumers' knowledge with the same means (1.98), followed by organic foods have a higher quality (2.09), health concerns are the most common motives for consumers purchase of organic foods (2.11) and the researcher found the same trends with the same means (2.25) are in terms of factors health concern and consumers' knowledge with statements "believe that organic foods are healthier" as well as "knowledge about organic foods is based on previous experience such as purchasing/consuming/hearing from others/reading about it". Overall, the same trends are apparent in terms of factor purchase intention because all the respondents, consumers and

non-consumers are not willing to pay > 15 % higher prices for organic foods.

The details displayed in Table 5 to provide the information that was used to describe the variables for the study.



**Table 5. Important factors determining of consumers and non-consumers motivation towards organic foods**

Variables	All respondents		Consumers		Non-consumers		p
	M	SD	M	SD	M	SD	
<b>Consumers' Attitude</b>							
I think organic foods is a trend	2.40 ± 0.93		2.40 ± 0.92		2.41 ± 0.89		0.132
Purchasing organic food is a wise choice	1.90 ± 0.65		1.73 ± 0.58		2.27 ± 0.66		<0.001*
Organic foods have a higher quality	1.80 ± 0.81		1.67 ± 0.78		2.09 ± 0.80		<b>0.019*</b>
Organic foods are safe for long-term consumption	1.85 ± 0.84		1.79 ± 0.86		1.98 ± 0.79		0.121
<b>Health concern</b>							
I believe that organic foods contain more natural ingredients than conventional foods.	1.94 ± 0.83		1.78 ± 0.78		2.30 ± 0.85		<b>0.006*</b>
believe that organic foods are healthier than conventional foods.	1.85 ± 0.75		1.67 ± 0.69		2.25 ± 0.75		<0.001*
Organic foods have a higher quality.	1.88 ± 0.75		1.66 ± 0.64		2.36 ± 0.78		<0.001*
Health concerns are the most common motives for consumers purchase of organic foods.	1.78 ± 0.68		1.63 ± 0.60		2.11 ± 0.75		<0.001*
<b>Consumer knowledge</b>							
My knowledge about organic foods is sufficient	2.35 ± 0.77		2.21 ± 0.64		2.64 ± 0.94		<0.001*
My knowledge about organic foods is based on previous experience such as purchasing/consuming/hearing from others/reading about it.	2.06 ± 0.69		1.97 ± 0.63		2.25 ± 0.78		0.133
Overall, I have a positive experience/impression about consuming organic foods.	1.96 ± 0.68		1.77 ± 0.57		2.41 ± 0.72		<0.001*
Knowledge is a key factor affecting consumers behavior in buying organic products.	1.85 ± 0.76		1.79 ± 0.73		1.98 ± 0.82		0.299
<b>Environmental concern</b>							
I pay a lot of attention to the environment.	2.22 ± 0.80		2.03 ± 0.72		2.64 ± 0.81		<0.001*
The environmental aspect is very important in my food's choice.	2.22 ± 0.80		2.02 ± 0.74		2.66 ± 0.74		<0.001*
I believe organic foods consumption contributes to protecting the environment.	1.93 ± 0.70		1.77 ± 0.68		2.30 ± 0.59		<0.001*
Environmental concern has a strong influence toward attitudes	2.09 ± 0.73		1.96 ± 0.73		2.39 ± 0.65		<b>0.006*</b>
Protecting the environment is the main reason buying organic foods	2.12 ± 0.77		1.98 ± 0.78		2.43 ± 0.62		<b>0.002*</b>
Organic foods are seen as healthier, environmentally friendly, and tastier	2.04 ± 0.74		1.87 ± 0.71		2.43 ± 0.66		<0.001*
<b>Purchase intention</b>							
I am willing to pay up to 5% higher prices for organic foods.	2.26 ± 0.77		2.16 ± 0.76		2.48 ± 0.73		0.105
I am willing to pay 6-10% higher prices for organic foods.	2.73 ± 0.86		2.59 ± 0.83		3.02 ± 0.82		<b>0.033*</b>
I am willing to pay 11-15% higher prices for organic foods.	3.04 ± 0.93		2.91 ± 0.90		3.34 ± 0.91		<b>0.032*</b>
I am willing to pay >15% higher prices for organic foods.	3.19 ± 0.99		3.02 ± 0.99		3.59 ± 0.90		<b>0.028*</b>

p= p-value chi-pearson correlation test, M = Mean of Likert scale answer, SD = Standard Deviation

## **5.4 Factors Influencing Consumers' Attitudes and Intention towards Organic Food Consumption**

In this study, linear regression was conducted to test the relation between four factors that influence consumers' attitude and their intentions towards organic foods consumption (Table 6). The factors such as health concern, consumers' knowledge and environmental concern were considered as independent variables while attitude was the dependent variable. Overall, all variables were ensured because the correlation was under 0.8 or 0.9 with the strongest variable being protecting the environment is the main reason for buying organic foods (0.809) and the lowest was organic food is a trend (0.322). Based on the results, all the factors were reliable with the strongest factor being environmental concern (0.881) and consumers' attitude was the weakest factor (0.679). Similar trends are apparent in terms of items of variable from the same factors as mentioned.

The data gathered from skewness and kurtosis showed that all factors normally distributed. For skewness with the highest factors was consumers' attitude (2.180), followed by environmental concern (1.799), health concern (-0.459) and the lowest was consumers' knowledge (-2.049). Same trends are apparent in terms of kurtosis with the highest factors being consumers' attitude (2.960) and environmental concern (1.201), followed by consumers' knowledge (-1.780) and different trends are apparent in terms of kurtosis with factors health concern (-1.995) as the lowest one.

As regards linear regression results, most of the consumers were more concerned about their health lifestyle with the highest significant level (0.006), followed by consumers' knowledge (0.012) and environmental concern (0.032). The regression coefficient for Health ( $X_1$ ) = 0.006 means that if Knowledge and Environmental concern are assumed to be constant, then every 1-point increase in Health will affect Attitude by 0.298. Knowledge regression coefficient ( $X_2$ ) = 0.012 means, if Health and Environmental concern are assumed to be constant, then every 1-point increase in Knowledge will affect Environmental concern by 0.275. The regression coefficient of Environmental concern ( $X_3$ ) = 0.032 means, if Health and Knowledge are assumed to be constant, then every increase of 1-point in Environmental concern will affect Attitude by 0.197.

**Table 6 Factors influencing organic foods consumption based on consumers perspective**

Variable	Validity		Descriptive Statistics				Reliability	Linear Regression		
	Total correlation	Square Multiple Correlation	Skewness S	Std.E	Kurtosis S	Std.E	Cronbach's Alpha	Standard Coefficients Beta	t	Sig.
<b>Independent variables:</b>										
<b>Health concern</b>										
I believe that organic foods contain natural ingredients	0.520	0.559								
believe that organic foods are healthier	0.592	0.711								
Organic foods have a higher quality.	0.602	0.644								
Health concerns are the most common motives for consumers purchase of organic foods.	0.440	0.507								
<b>Consumers' knowledge</b>										
My knowledge about organic foods is sufficient	0.632	0.583								
My knowledge about organic foods is based on previous experience such as purchasing/consuming/hearing from others/reading about it.	0.413	0.543								
Overall, I have a positive experience/impression about consuming organic foods.	0.595	0.562								
Knowledge is a key factor affecting consumers behavior in buying organic products.	0.473	0.505								
<b>Environmental concern</b>										
I pay a lot of attention to the environment.	0.521	0.633								
The environmental aspect is very important in my foods choice.	0.507	0.620								
I believe organic foods consumption contributes to protecting the environment.	0.665	0.695								
Environmental concern has a strong influence toward attitudes	0.651	0.687								
Protecting the environment is the main reason buying organic foods	0.712	0.809								
Organic foods are seen as healthier, environmentally friendly, and tastier	0.514	0.600								
<b>Dependent variable:</b>										
<b>Consumers' Attitude</b>										
I think organic foods is a trend	0.158	0.322								
Purchasing organic food is a wise choice	0.508	0.470								
Organic foods have a higher quality	0.346	0.592								
Organic foods are safe for long-term consumption	0.324	0.463								
			<b>0.112 ± 0.244</b>		<b>-0.964 ± 0.483</b>		<b>0.770</b>	<b>0.298</b>	<b>2.821</b>	<b>0.006*</b>
			<b>-0.50 ± 0.244</b>		<b>-0.860 ± 0.483</b>		<b>0.764</b>	<b>0.275</b>	<b>2.567</b>	<b>0.012*</b>
			<b>0.439 ± 0.244</b>		<b>0.580 ± 0.483</b>		<b>0.881</b>	<b>0.197</b>	<b>2.171</b>	<b>0.032*</b>
			<b>0.532 ± 0.244</b>		<b>1.430 ± 0.483</b>		<b>0.679</b>	<b>-</b>	<b>-</b>	<b>-</b>

S = statistics, Std.E = Standard Error, t = t-statistics, \* Sig: Significant p-value < 0.05

## **6 Discussion**

### **6.1 Organic Foods Consumption with Respect to Gender**

The result of this study showed that female students consumed more organic foods such as vegetables, fruits, meat, milk, egg, grain & beans, tea & coffee than male. Similarly, data collected from the Brazilian population showed that fruits and vegetables are the most consumed organic foods, followed by bee products, cereals, milk and their derivatives (Adalgisa et al. 2020). A study conducted in Southern Italy by Annunziata & Vecchio (2016) confirmed the increased interest among women in consuming organic foods because they are more concerned about health. Hempel & Hamm's (2016) survey of German consumers found that women have a larger preference for organic foods than males, the authors discovered that 53% of organic food purchasers were women. This finding could be attributed to the female public's increased interest in maintaining a better lifestyle in order to reduce the risk of certain diseases, as well as concerns about lifespan (Pozzo 2012).

Adawiya et al. (2021) determined how customer preferences and awareness influence their interest in organic vegetables. CPrevious study also confirmed in contrast perception that man are more aware of organic foods (Briz & Ward 2009; Kumar & Ali 2011) because men were found to be more confident about their knowledge concerning organic foods (Aertsens et al. 2011). It is important to avoid foods that contain engineering genetics and other chemicals that are not good for health. The results obtained here are related to the study observed by (Gorni, Gomes & Dreher 2012), who quantitatively analyzed the gender difference among university students in relation to consume organic foods, as a result mentioned that women are more concerned about this issue and in general, the students showed awareness of healthy life. The results stated that women are more informed and have an interest in contents related to health and well-being, and are more likely to consume organic foods.

## **6.2 Factors Determining Organic Foods Consumption**

Health concern was the most important factor determining organic food consumption, this statement supported by Shin & Mattila (2019) confirmed that consumers prefer organic food because it is considered chemical free and safe for health. Kutresnaningdian & Albari (2020) confirmed that most of the people preferred to consume organic foods because consuming organic foods is healthier and more beneficial than conventional foods and also has higher quality, these factors were identified as important factors determining organic foods consumption. Knowledge is the key factor affecting consumers behavior in buying organic products was identified as an important factor in determining organic foods consumption and previous research supported that quality of knowledge has increased the demand for organic food consumption behavior (Watanabe et al. 2020). A study by Stolz et al. (2011) showed that consumers who chose organic products were likely to be more knowledgeable about food ingredients (compared to consumers who chose conventional foods), normally people consume it based on experience. These are important factors as well to buy organic foods.

Consumers' attitude was part of the important factor determining consumers towards organic foods, especially consumers who found that purchasing organic foods is a wise choice and has a higher quality as the highest significantly from consumers' attitude variable. This is in accordance with the literature stated that consumers found that purchasing organic food associated with health problems was a wise decision (Weiss & Venkataramani Johar 2016). Mei Ling & Piew (2012) confirmed that health concern is the main factor consumers purchase organic foods due to higher quality and believe that organic foods are healthier than conventional foods as well as the highest motivations for consumers to buy organic foods, nowadays, consumers are highly concerned about health issues.

Environmental concern was the important factors and has a positive impact on organic food purchase intention, all the statements were highest significantly in determining consumers' attitude towards organic foods. This finding suggested that consumers were more concerned with environmental issues and consider environmental impacts in their purchasing decisions due to protecting the environment (Molionillo et al. 2020; Prentice et al. 2019). Environmentally concerned consumers believe that if they purchase more environmentally friendly products, their purchasing behavior will motivate companies to produce more environmentally friendly products and invest more effort and resources to protect the environment (Molionillo et al. 2020; Huang et al. 2020).

Environmental concern and consumers' attitude were the main factors in determining non-consumers to purchase organic foods. Based on results supporting the study that environmentally conscious consumers care about environmental issues and tend to purchase more environmentally friendly products (Mishal et al. 2017;D'Amico et al. 2016) . A previous study confirmed that organic is safe long term consumption, healthier than conventional foods, higher quality (Kutresnaningdian & Albari 2020) and it was identified as one of the important factors for non-consumers to buy organic foods.

Overall, purchase intention was identified as an not important factor in determining consumers and non-consumers attitude and intention towards organic foods. (Ghali-Zinoubi & Toukabri 2019) emphasized that organic products are expensive compared to conventional products. This statement was supported by Bhavsar el al. (2018) confirmed that consumers with low incomes are not willing to pay more for organic foods.. In contrast, Melovicetal (2020) found that respondents who chose organic products were willing to pay a price premium to obtain organic food and ensure food quality.

### **6.3 Factors Influencing Consumers towards Organic Foods**

Based on the results showed that H1, H2, H3 and previous studies findings were supported. Schaufele & Janssen (2021) confirmed that some factors such as health consciousness, environmental protection, food quality, and knowledge have a major impact consumers' attitude to purchase organic foods. Tandon et al. (2021) confirmed that consumers prioritize health and the environment, with a preference for healthy and hygienic food. Rana and Paul (2017) stated that consumers who have knowledge about organic foods prioritize maintaining a healthy lifestyle and diet, avoiding preservatives and taste enhancers, selecting healthy foods, avoiding polluting foods, and avoiding unhealthy options. These supported H1, H2 and H3.

Since the hypothesis was supported, it could be explained that the respondents who are more concerned about food safety and its effect on their health tend to hold a positive attitude toward organic foods. Similarly with the previous study, Sue et al. (2022) confirmed that healthy foods was the main motivation to purchase organic foods and health concern positively as the most important factors of consumers' attitude towards organic foods (Chakraborty et al. 2022). Negaraj (2021) found that the role of consumer health awareness, food safety and attitude have a relationship that influences consumers to consume organic foods. This hypothesis was supported based on the results. This represented that consumers who have more knowledge, the more positive their concern towards purchasing organic foods. Finding showed that knowledge about organic foods is mostly direct to consumers' perspective and awareness of various factors related to organic food products and the organic farming practices used to produce them (Eyinade et al. 2021). Consumers' knowledge plays an important part in creating perceptions and attitudes toward purchasing organic foods (Jensen et al. 2019; Rodríguez-Bermúdez 2020). Those with higher knowledge tend to choose organic foods than conventional foods (Hochstein et al. 2019). Similarly with the previous study, Ayyub et al. (2018) confirmed that experience and knowledge can influence the attitude of consumers in buying organic food. Consumers who have more knowledge are more likely to recognize and value the health benefits of organic products and enhance their positive attitude towards purchasing organic foods (Nguyen et al. 2019). Based on the result, consumers' knowledge has a positive impression/experience, the more positive attitude towards purchasing organic foods. Therefore, it supported the previous studies proposed in various countries, such as India, Indonesia, and Italy (Singh & Verma. 2017; Effendi et

al. 2015; Magistris & Gracia 2008) confirmed that knowledge affects consumers' attitude and purchase intention toward organic foods. In contrast, the lack of knowledge was considered as one factor of the leading barriers for consumers not purchasing organic foods (Aertsens et al. 2011). Other than a lack of knowledge regarding organic foods, the key obstacles of organic food purchases are the following: high price premiums, lack of organic food availability, scepticism of organic certification, insufficient marketing, satisfaction with current food sources and sensory defects (Hoffmann & Wivstad 2015).

Since the hypothesis was supported based on the results. This represented that the more positive a consumers' attitude towards organic foods, the more they are concerned about the environment. This research was supported by some previous studies. Yue et al. (2020) confirmed that organic foods consumption not only affects consumers to become healthy but also influences environmental protection. Consumers are concerned about environmental issues, they generally tend to reduce their impact on the environment by purchasing organic foods (Molionillo S et al. 2020; Huang H et al. 2020).

According to the previous studies, they stated that customers are concerned about the use of chemical fertilizers and pesticides in the soil, which indirectly affects people's health, and that consumers are cautious in their food consumption behavior in this regard was one of the actions of environmentally friendly (Hassaan & Nemr 2020). In his writing, he stated that social and environmental norms have increased consumer awareness which has resulted in positive perceptions among customers towards the adoption of organic food products as well as developing a sense of responsibility towards the environment (Michalikova et al. 2022).

Similarly, with the previous study, when it comes to the environmental measures, respondents did care about the environment which is aligned with the finding from the previous studies proposed in various countries, such as Australia, Romania, India, and Thailand (Pearson et al. 2013; Basha et al. 2015; Oroian et al. 2017; Ueasangkomsate & Santiteerakul 2016) confirmed that environmental concern have an impact on purchasing organic foods. However, this would be enough for them to have a positive attitude toward organic foods. It could be explained that there are many ways for each person to protect the environment, for example, choosing organic food is one option to protect the environment. In contrast, y Huo et al. (2024) emphasized that the behavior of consumers who are reluctant to buy organic products and even prevent consumers from buying organic products are people who are not truly environmentally friendly. Surprisingly,



environmental concern does not significantly alter attitudes towards organic foods, which contradicts several previous research findings (Le-Anh & Nguyen-To 2020). Zakowska-Biemans (2011) confirmed that although people know the importance of environmental protection and animal welfare, but it is not relevant to the organic purchase decision.

## 6.4 Limitation of the Research

This research is not without limitations. Physical data collection was switched to online data collection due to the worldwide pandemic of COVID-19 movement restriction. Two universities in Medan were contacted to facilitate this data collection process by distributing the online questionnaires to the students. The chosen non-random convenience voluntary sampling method utilizing the snowball method resulted in a population set not representative of the general specific population. This could further be caused by using only the target group of 18-24 years old and utilizing only students, because nowadays young people are starting to be aware of health concern and making it a lifestyle and current trend, and the results associated with the age group might be largely influenced by young people's ideology.

There are few limitations in the current study. First, the survey was collected by convenience sampling and the research results are limited to this sample. As a consequence, the research findings can not be generalized. As a suggestion for future research, more advanced statistical analyses could be conducted by extending the number of respondents to enable findings could be more impactful, and an in depth face to face interview could allow the respondents to provide richer responses based on their attitude, perspective, and intention. Second, the research model included the relationship among health concern, knowledge, environmental concern, attitudes and intentions. The research model can be expanded by adding variables related to organic food product purchasing inspirations and barriers in future research. Third, this study analyzed organic food products in general. Therefore, in future investigation of researchers specific product groups will contribute to the development of theory and practice. Obstacles of organic food purchases are the following: high price premiums, lack of organic food availability, skepticism of organic certification, insufficient marketing, satisfaction with current food sources and sensory defects (Hoffmann & Wivstad 2015). Prices of organic products are relatively expensive, thus only certain groups have the potential to consume it and effort to observe these groups is priority. Especially in Indonesia, researches in organic products need to be linked with the socio-cultural aspects as well as the active role of local governments and the private sector in campaigning for healthy behavior.

## **7 Conclusions**

The worldwide increasing trend for organic food consumption is influenced by many factors of consumers' attitudes towards purchasing organic foods. The review of scientific literature represented key factors that possibly impact organic food consumption. The results of the study found that females were more interested in consuming organic foods compared to males. Health concerns were the most common motives for consumers purchasing organic foods. Knowledge was the key factor affecting behavior in buying organic foods which was identified as an important factor to influence the attitude and intention of non-consumers who were still considered to consume organic foods. In addition, the results showed that both consumers and non-consumers were not willing to pay higher price for organic foods. The findings showed that health concern was the most significant factor in influencing consumers to develop a positive attitude and intention towards organic foods, followed by consumers' knowledge and environmental concerns. Previous research findings supported these results and confirmed that some factors such as health consciousness, environmental protection, food quality, and knowledge have a major impact on consumers' attitudes regarding organic foods. The study provided potential insights and recommendations for future to Indonesian local governments to enhance the knowledge of consumers' behavior toward organic foods.

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# Appendices

List of Appendices

## Appendix 1: Online questionnaire

### Questionnaire in English

Dear Sir/Madam,

I would like to ask you to fill in the following questionnaire. I am a student at the Czech University of Life Sciences Prague, Czech Republic, and I am conducting a study to learn more about the “Consumers’ attitude and purchase intention in relation to organic foods in Indonesia“. All the data are collected anonymously. I would appreciate very much if you would fill in and help me to conduct this research. The filling would only take a few minutes.

Thank You!

### Organic foods consumption

1. Do you buy organic foods?

Yes

No

2. If chosen Yes, what were the main reason for buying them?

Lifestyle

Taste

Diet

Health

Environmental concern

3. If chosen No, what were the main reason for not buying them?

Expensive

Lack of knowledge

I am not interested

I do not concern about environmental concern

I do not like the taste

I do not concern about health

4. Attitude toward organic foods (5-point Likert scale, 1- strongly disagree to 5- strongly agree)

Statements	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I think organic foods is a trend.					
Purchasing organic food is a wise choice.					
Organic foods have a higher quality.					
Organic foods is safe for long-term consumption.					

5. What do you think about price of organic foods?

Statements	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I think price of organic foods is cheap.					
I think price of organic foods is expensive.					
I think price of organic foods is extremely expensive.					

6. What are the percentage of organic foods do you buy in each category?

	0%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Vegetables	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fruits	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Milk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Egg	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Meat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Grain & Beans	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tea & Coffee	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7. Health concern toward organic foods (5-point Likert scale, 1- strongly disagree to 5- strongly agree)

Statements	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I believe that organic foods contains more natural ingredients than conventional foods.					
I believe that organic foods is more healthy than conventional foods.					
Organic foods have a higher quality.					
Health concern as the most common motives for consumers' purchase of organic foods.					

8. Consumers' knowledge toward organic foods (5-point Likert scale, 1- strongly disagree to 5- strongly agree)

Statements	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
My knowledge about organic foods is sufficient.					
My knowledge about organic foods is based on previous experience such as purchasing/consuming/hearing from others/reading about it.					
In overall, I have a positive experience/impression about consuming organic foods.					
Knowledge is a key factor affecting consumers' behavior in buying organic products.					

9. Environmental concern toward organic foods (5-point Likert scale, 1- strongly disagree to 5- strongly agree)

Statements	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I pay a lot of attention to the environment.					
The environmental aspect is very important in my food choice.					
I believe organic food consumption contributes to protect the environment.					
Environmental concern has a strong influence on my attitude					
Protecting the environment is one of the most common reasons consumers buy organic products					
Organic foods are seen as healthier, environmentally friendly, and tastier than traditional foods.					

10. Purchase intention for organic foods (5-point Likert scale, 1- strongly disagree to 5- strongly agree)

Statements	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I am willing to pay up to 5% higher prices for organic foods.					
I am willing to pay 6-10% higher prices for organic foods.					
I am willing to pay 11-15% higher prices for organic foods.					
I am willing to pay >15% higher prices for organic foods.					

11. How often do you purchase organic foods?

Daily

Once a week

2-3 times a week

4-6 times a week

A few times a month

A few times a year

Additional information

12. I know about organic foods product mainly by

Shopping in the supermarket or vegetable market

TV advertisements

Internet advertisements

Leaflets, magazines, and newspaper

Posters in public places

Family and friends' recommendations

Others

12a. If chosen others, please specify

Answer: .....

13. Where do you prefer to buy organic foods?

In the supermarket

In the vegetable market

In organic foods specialty stores

On the internet

At organic farms

Others

13a. If chosen others, please specify

Answer: .....

Personal factors

14. Gender

Female

Male

15. What is your field of study?

Natural sciences [Geography, Biology, Physics, Math]

Social sci. [Sociology, Economics, Business, Political sciences, Law]

Humanities [History, Languages, Anthropologies]

Agriculture [Fishery, Forestry, Veterinary Medicine, Agricultural Engineering, Agricultural

Industrial Technology, Agribusiness]

16. How many members in your family?

1-2

3-4

5-6

