



What drives willingness to purchase and stated buying behavior toward organic food? A Stimulus–Organism–Behavior–Consequence (SOBC) perspective



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ABSTRACT

The consumption of organic food is gaining ground globally due to consumers' concerns for personal health and food safety. Several countries, such as Japan, are turning their focus to promoting organic food consumption, but research is scarce on Japan's organic food market. Additionally, despite consumers' positive predisposition, retail sales in Japan for organic food are low, and there is a need to understand the reason for this disparity. The present study addressed this need by examining factors that may drive consumers' willingness to purchase (WTP) and stated buying behavior (SBB) toward organic food through the Stimulus–Organism–Behavior–Consequence (SOBC) paradigm. The developed model was tested using cross-sectional data collected from 928 Japanese consumers. Study findings suggest that food safety concerns (FSC) and health consciousness are positively related to openness to change, and ethical self-identity. Further, openness to change and ethical self-identity are positively associated with WTP, while SBB is positively associated with WTP. In addition to this, buying frequency positively moderated the association of self-identity with WTP and WTP with SBB. The study offers critical implications for researchers, marketers and retailers.

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1. Introduction

In the recent past we have witnessed a definitive increase across the globe in consumers' interest in sustainably grown food, such as organic food. This rising interest in organic food is attributed to multiple reasons, such as the absence of chemical or synthetic additives in its production, as well as the ecological and animal-friendly nature of its attributes (Dowd and Burke, 2013). The growth of organic food consumption can also be attributed to the

rising levels of concern for environmental and ecological welfare surrounding the use of chemical, synthetic and genetically modified means of conventional food production (Willer et al., 2020; Tandon et al., 2021). Consequently, the organic food market has grown significantly with the emergence of specialty retail outlets that focus on natural or organic food (Kim, 2019; Tandon et al., 2020 a,b). In addition to this, several retail stores have increased the allocation of shelf space to the organic food category (Kim, 2019). The global market is valued at 96.7 billion USD, wherein more than 100 countries have already adopted distinct regulations for the cultivation of organic food (Willer et al., 2020).

Japan is one of the few Asian countries that have adopted and fully implemented specific agricultural standards (Willer et al., 2020; Tandon et al., 2021), namely, the Japanese Agricultural Standards, to certify organic food produced in the country (Graham,

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2019). Japanese producers are also moving toward organic farming to combat the perceivably adverse effects of modern agricultural practices (Graham, 2019). Moreover, Japanese producers are adopting alternative measures to modern chemical-based agricultural practices, such as *shizen nōhō*, which are based on maintaining a sustainable, harmonious, and symbiotic relationship with nature (Graham, 2019). Furthermore, Japan has a rich history of the *alternative food movement* that has been observed worldwide (Kondoh, 2014). In Japan the alternative food movement is known as the *teikei* movement, which represents a partnership between farmers and consumers. The association is based on the condition that the farmers will share their organic produce with consumers in return for their support to make the farming operations viable and secure (Kondoh, 2014). In fact, *teikei* has motivated other countries to introduce similar systems, for example, Community Supported Agriculture (CSA) in the United States (Ostrom 2007). All in all, there is distinct evidence in the literature that Japan has a rich heritage of organic food farming and consumption. Despite the past efforts and different recent initiatives to boost sustainable food production and organic food consumption, the current size of the domestic Japanese market for organic food may be considered small, with only 0.2% of the agricultural land dedicated to the cultivation of organic food, as compared to 0.6% in Thailand and 0.9% in Taiwan (Willer et al., 2020). The retail sales for organic food in Japan were reported to be 1419 million Euros (approximately 1.68 billion USD) in 2018 (FiBL, 2018; Willer et al., 2020). Encouragingly, a Japanese market research firm has estimated the value of the domestic organic food market to reach approximately 1.86 billion USD (or 196.4 million Yen) by 2022 (Yano Research Institute Ltd, 2018). These statistics indicate the tremendous potential of this market, as also claimed by prior research (Willer et al., 2020).

Yet, the review of prior research on organic food suggests that only a limited number of studies have focused on Japanese consumers and the market (Nuttavuthisit and Thøgersen, 2019). The few studies that have examined Japanese consumers suggest that they have shown some resistance toward food that is genetically modified (Reiher and Yamaguchi, 2017). They further suggest that Japanese consumers are collectivist, economically prosperous and display characteristics such as image consciousness, and risk aversion (Tandon et al., 2021). We argue that academic knowledge about Japanese organic food market as well as consumers, is limited, and more research is required to enrich the literature. Particularly, the comparatively low consumption of organic food, despite sustainability and healthy eating becoming important considerations for quality of life in recent times, indicates a need to better understand the drivers of consumers' organic food behavior in the Japanese context. A detailed exposition of the factors that stimulate consumers' organic food buying behavior is of paramount importance to enable retailers, marketers, and policymakers to expand the market share of organic food consumption in Japan.

Additionally, prior literature has indicated the presence of a distinct intention–behavior gap in the consumers' decision-making process concerning the purchase of organic food (Chekima et al., 2017; Sultan et al., 2020; Tandon et al., 2020 a,b). To elaborate, prior literature argues that although individuals may be positively disposed toward organic food, their disposition may not always culminate in the actual purchase (Chekima et al., 2017). Scholars have considered such a knowledge gap about the disparity between consumers' willingness to purchase (WTP) or purchase intention and their stated as well as actual purchase behavior to be a significant impediment in clearly explicating the decision-making process for organic food purchase (Sultan et al., 2020). The present study attempts to address these research gaps by examining factors that may stimulate the purchase of organic food in Japan. Specifically, we propose to address two research questions: **RQ1**. What

are the factors that are positively associated with the willingness of Japanese consumers to purchase organic food? **RQ2**. How is the stated organic food buying behavior of Japanese consumers associated with their WTP?

This study utilized the Stimulus-Organism-Behavior-Consequence (SOBC) paradigm as a theoretical framework to address the proposed research questions. The proposed model was tested by analyzing cross-sectional data collected from 928 Japanese consumers. The study focuses on the enablers of consumers' willingness to purchase organic food items, as distinct from the inhibitors of the same. This aligns with previous literature in other contexts such as technology usage (e.g., Cenfetelli and Schwarz, 2011).

Through the findings, the present study makes four novel contributions to prior knowledge in this field of study. First, we hypothesize the research framework using the theoretical lens of the SOBC paradigm, which is a novel framework in organic food research. Second, the research focuses attention on Japan's organic food market, a geographical context that has received limited scholarly attention in the past. Third, this study investigates stated buying behavior (SBB) as a dimension of consumer behavior, which has seen limited integration in prior studies about organic food in comparison to dimensions of attitude or purchase intention. This study, therefore, attempts to understand the existing intention–behavior gap in organic food consumption.

The rest of the manuscript is subdivided into five sections. Section Two presents the theoretical background of the SOBC paradigm, along with mapping of the variables representing the SOBC components to the present context. Section Three details the data collection process and the instrument used. Subsequently, Section Four presents data analysis and results, followed by the discussion of the findings in Section Five, and Section Six presents the concluding remarks, implications, limitations and future scope of research.

2. Background literature

2.1. Theory and hypotheses development

The present study aims to understand better what drives consumers' WTP and SBB for organic food. To achieve this objective, this study bases its framework on the premise of the Stimulus–Organism–Behavior–Consequence (SOBC) paradigm. The SOBC framework considers the implications of environmental stimuli (S) for an individual's internal state, which encompasses cognitive processes and psychological constructs such as emotions, personality, and motives. In turn, this internal state of individuals, or organisms, (O), first affects their behavioral responses (B) and subsequently, covert, or overt consequences (C), which ultimately impact individuals' consideration of environmental stimuli and internal state. The SOBC is based on the premise of the social learning theory (Bandura, 1977), and it progresses the Stimulus–Organism–Response theory (SOR) (Mehrabian and Russell, 1974). The SOBC offers an alternative explanation for the complex interactions between an individual (O, B) and environment (S, C). Due to this, the SOBC has been used in the recent past to explain interactions in different contexts, such as social media overload (Whelan et al., 2020).

The SOBC may offer a unique way to explicate consumers' engagement with organic food purchase as well as consumer's SBB. Furthermore, it can address the paucity of knowledge and the significant inconsistencies in the prior research (Chekima et al., 2017) pertaining to the intention–behavior gap in the context of organic food. The present study pioneers the application of SOBC to examine consumers' behavior toward organic food. We

acknowledge that some prior studies have utilized the SOR framework to explain consumer preferences related to purchasing organic food (Lee and Yun, 2015). However, to the best of our knowledge, the SOBC has never been utilized in this context.

The framework was chosen in the present study for three primary reasons. First, the components of the SOBC, spanning stimulus to consequence, cover a wide spectrum of manifestations, which may explain the mechanism for the disparity in consumers' positive perception and purchase behavior toward organic food. It may, thus, advance the theoretical perspective and examination of organic food buying behavior to offer new insights into consumer decision-making in the context. Second, the framework considers an individual's state (O) and behavior (B) to be socially-driven and consciously enacted through choices and self-regulation (Whelan et al., 2020). This is pertinent to the current study due to increasing communal impetus on the widespread adoption of organic food on account of its positive cumulative benefits for individuals and the environment (Kushwah et al., 2019a, 2019c). Third, we believe that the SOBC paradigm provides a grounded and parsimonious approach to examine the hypothesized relationships under study.

Prior literature has indicated that consumers' increased propensity to purchase organic food may be due to rising food safety concerns (FSC) (Molinillo et al., 2020) and health consciousness (Pham et al., 2019). Since these factors are, to a certain extent, a part of the consumers' milieu, we have considered them as stimuli in this study. Next, the present study has regarded self-identity (Oh and Yoon, 2014), ethical self-identity (Qasim et al., 2019) and values (openness to change) (Vieira et al., 2013) as the organism as they are internally-oriented factors of individuals which are associated with their decision-making. These factors can have a potentially positive association with consumers' WTP (Mainardes et al., 2017), and drive consumers' stated buying of organic food (SBB) (Birch et al., 2018). Therefore, this study examines health consciousness and FSC as stimuli (S) along with psychological constructs of values (openness to change), self-identity, and ethical self-identity, as dimensions of individuals' internal state (O). Additionally, the impact of these constructs is evaluated on WTP as a behavioral response (B) and SBB as a consequence (C). The study further posits that these factors may lead to the development of a more nuanced understanding regarding the mechanism-of-effect that comprises consumers' decision-making to purchase organic food (Fig. 1). The proposed study hypotheses follow the structure of the SOBC framework, which discusses sequentially the stimuli, state of individual or organism, behavior, and consequence, as examined in the study. The proposed model was controlled for age, gender, personal income and household income. Additionally, the moderating influence of buying frequency on the association of WTP with openness to change, self-identity, ethical self-identity, and SBB was also investigated.

2.2. Stimuli

The framework posits that environmental stimuli may be in the form of overt or covert situations that may induce individuals' internal state to drive certain behaviors (Whelan et al., 2020). Prior research indicates that health consciousness and FSC may act as egoistic motivators (Birch et al., 2018; Hansen et al., 2018). In line with previous studies, the present study posits that these motivators act as situational environmental stimuli in the context of organic food consumption.

2.2.1. Health consciousness

Health consciousness pertains to an individual consumer's propensity to identify with and actively take steps to protect their

health (Hansen et al., 2018). Prior research has considered health consciousness to be an egotistic motive for organic food purchase and consumption (Hansen et al., 2018). However, findings of prior studies regarding the effect of health consciousness have been inconsistent and limited to the examination of its association with purchase intention and WTP. For instance, Michaelidou and Hassan (2008) posited a minor indirect role of health consciousness in determining buying intentions for organic food. Husic-Mehmedovic et al. (2017) suggest that although health consciousness may create a positive inclination among individuals for consuming organic food, it may not be associated with a positive behavioral consequence. Along similar lines, Pino et al. (2012) found no effect of health consciousness on buying intentions. In comparison, Shin and Mattila (2019) found health consciousness to influence buying intentions positively. Additionally, the study of Shin and Mattila (2019) also shows this impact to be influenced by gender. The present study aims to address these inconsistencies by explaining the mechanism through which health consciousness may be related to consumers' internal psychological states such as identity and values.

According to Kushwah et al. (2019a; 2019b; 2019c), consumers' concern in maintaining personal or familial health can invoke their interest in seeking information and knowledge about organic food. The perceived adverse effects of food manufactured through chemical and synthetic means prevalent in modern agricultural practices can raise concerns among individuals about the potential impact of such food on their health (Qasim et al., 2019; Shamsi et al., 2020). This can lead to individuals being open to considering and developing their identities as consumers of organic food (Hansen et al., 2018). Openness to change, as a value, has been found to affect purchase intention significantly (Mainardes et al., 2017) and may be understood as an individual's value that stimulates and induces the need for self-directed readiness to engage in independent thoughts, actions, or feelings for new experiences (Mainardes et al., 2017). We argue that individuals' health consciousness would lead to their openness in changing consumption patterns and developing self-identities that can act as motivators for considering organic food consumption. This motivation would subsequently affect their interest in (Kushwah et al., 2019c) and intentions to purchase (Michaelidou and Hassan, 2008) organic food.

Existing literature suggests a distinct gap in knowledge relating to the effect of health consciousness on individuals' psychological constructs in the context of organic food (e.g., Kim, 2019). Kim (2019) found the concept of self and identity to be significantly correlated with health consciousness. Similarly, Qasim et al. (2019) found health consciousness to exert a significant influence as a control variable on environmental self-identity and behavioral intentions. This study extends prior knowledge on the association of health consciousness with consumers' openness to change, self-identity, and, subsequently, their WTP and SBB. We posit that health consciousness would also be related to individuals' ethical self-identity, an association which, to the best of our knowledge, has not been tested in prior research. Therefore, the following hypotheses are proposed:

- H1.** Health consciousness is positively associated with openness to change
- H2.** Health consciousness is positively associated with self-identity
- H3.** Health consciousness is positively associated with ethical self-identity

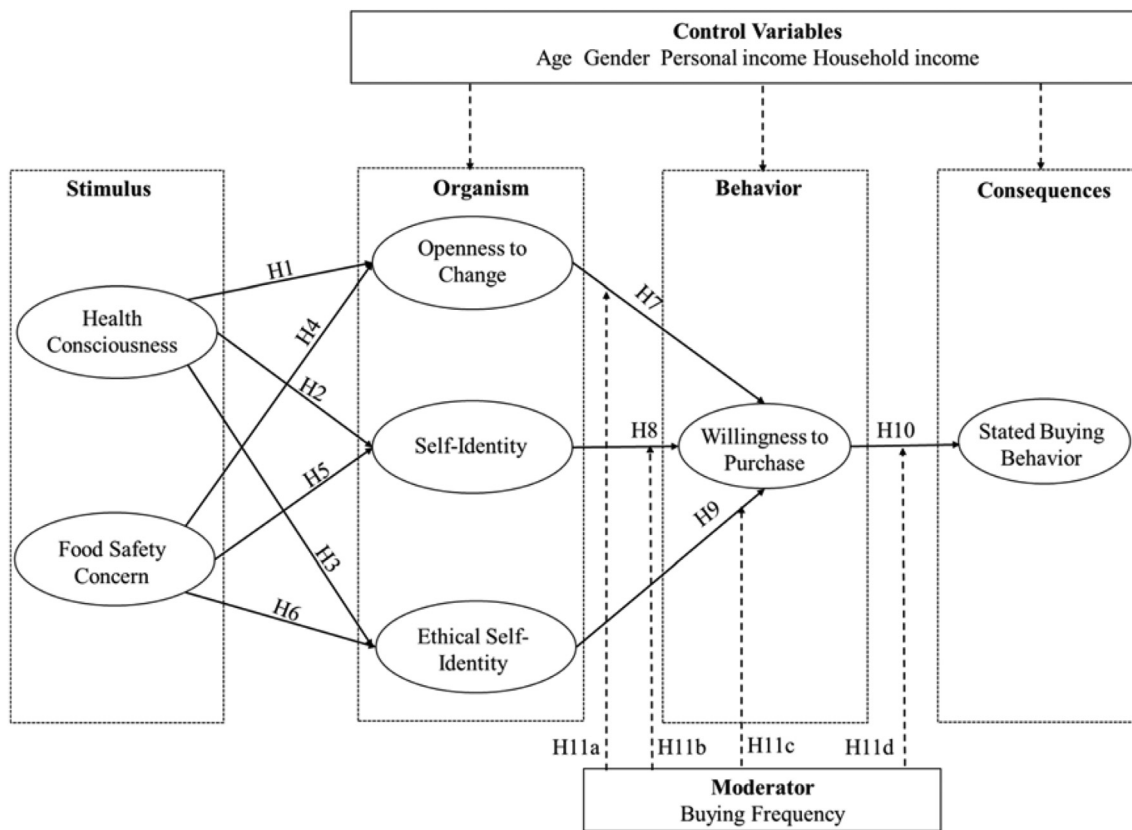


Fig. 1. Hypothesized framework grounded in SOBC.

2.2.2. Food safety concerns

Concurrent with increasing health consciousness, another factor that has been gaining ground as a predictor for organic food purchase is FSC (Michaelidou and Hassan, 2008). FSC may be understood as consumers' concerns about genetic modification or the presence of artificial, chemical and synthetic additives, growth regulators, or ingredients in food products (Lee and Hwang, 2016). Prior studies suggest that consumers may perceive organic food to be naturally healthy due to the absence of such chemical and synthetic constituents in the production process of food items (Pham et al., 2019). We argue that the rising incidence of food-related diseases and scandals may have induced individuals to become open to buying organic food due to their perception of it being as safe as natural products (Kareklas et al., 2014). Therefore, it is posited that FSC may act as a motive that induces the consumer value of openness to change.

Prior researchers have tested the impact of FSC on purchase intentions toward organic food, yet the findings of such studies show slight inconsistencies and have been limited primarily to examining FSCs as an antecedent to purchasing intention and attitude. For example, Michaelidou and Hassan (2008), as well as Pham et al. (2019), determined that FSC exerts a positive influence on attitude. Similarly, Hwang (2016) found FSC to be a significant predictor of purchase intention for both young and older consumers. However, Pino et al. (2012) found that FSC affects occasional consumers but not regular consumers.

This study extends prior investigations into the role of FSC in consumers' decision-making for organic food. We argue that FSC may be associated with consumers' identity to act as conspicuous consumers of healthy food to ensure their health and well-being (Michaelidou and Hassan, 2008). This may in turn be associated

with their adoption of organic food, which is traditionally seen as a healthier and environmentally-friendly substitute. For instance, Dean et al. (2012) found that self-identity positively influences consumers' intentions to purchase organic food items. Further, studies have indicated that individuals' food-related perceptions and practices may be influenced by criteria such as their identity and habits (Chen, 2011). This is supported by the contention of some researchers who believe that the primary goal of individual consumption rests in expressing one's identity (Ehlert and Faltmann, 2018). This would hold especially true for the consumers who are ethically-driven, possess a strong ethical self-identity and exhibit concerns about the influence of their lifestyle and food choices on the environment (Husic-Mehmedovic et al., 2017). Such individuals may purchase organic food due to their innate pro-environmental inclinations (Kareklas et al., 2014). Based on the discussion, the following hypotheses are proposed:

- H4. FSC is positively associated with openness to change
- H5. FSC is positively associated with self-identity
- H6. FSC is positively associated with ethical self-identity

2.3. The internal state of the organism

An individual's values (Mainardes et al., 2017; Vieira et al., 2013) and identity (Hansen et al., 2018; Michaelidou and Hassan, 2008; Qasim et al., 2019) have the potential to affect their food consumption behavior. Accordingly, it is argued that values (openness to change, self-identity, and ethical self-identity) may comprise an individual's internal state, which can influence their WTP.

2.3.1. Value: openness to change

Openness to change, as a dimension of value, has been previously found to affect consumers' buying behavior for organic food, but its effect has seen limited investigation in prior research. In this regard, [Vieira et al. \(2013\)](#) suggest that openness to change may direct consumers toward organic food because its consumption may allow for the development of a positive self-image and identity. [Hansen et al. \(2018\)](#) found that openness to change moderated the mediating influence of organic food identity relationship between health consciousness and intentional buying behavior. Similarly, [Mainardes et al. \(2017\)](#) found that openness to change exerted an indirect positive influence on purchase intentions toward organic food through attitude. In comparison, [Scalvedi and Saba \(2018\)](#) found openness to change to be insignificant and health concerns to positively affect consumption behavior for organic food. It can, thus, be concluded that prior studies present an inconsistent picture of the effect that openness to change has on organic food buying behavior. We extend the prior research by examining the effect of this dimension of value on consumers' WTP for organic food. Hence, we propose:

H7. Openness to change is positively associated with WTP

2.3.2. Self-identity and ethical self-identity

Prior literature on organic food suggests a limited focus on psychological constructs of self-identity and ethical self-identity ([Hwang, 2016](#); [Michaelidou and Hassan, 2008](#); [Pino et al., 2012](#)). Self-identity can be described as the belief of individuals in their uniqueness, which is determined by their thoughts in tandem with socially determined structures and norms ([Hansen et al., 2018](#); [Oh and Yoon, 2014](#)). Ethical self-identity may be understood as a distinct characteristic that induces individuals to align with matters related to environmental and animal welfare ([Qasim et al., 2019](#)). This is similar to the concept of "organic food identity" as elucidated by [Hansen et al. \(2018\)](#), which is determined, not just by societal norms, but also by individuals' empathy toward environmental issues and subsequently drive ethical consumption choices ([Michaelidou and Hassan, 2008](#)). According to [Khare and Pandey \(2017\)](#), having a green or ethical identity may also reduce individuals' perceived degree of risk related to consuming organic food.

We posit that self-identity and ethical self-identity are likely to be associated with individuals' organic food buying behavior. This may explain why, despite societal drive and positive inclinations to adopt organic and fair trade products, there is a limited conversion of WTP into purchase ([Nuttavuthisit and Thøgersen, 2017](#)). Furthermore, significant differences exist for the influence of ethical self-identity in prior literature. For example, while [Qasim et al. \(2019\)](#) considered environmental identity a mediator, other studies such as [Hwang \(2016\)](#) and [Hansen et al. \(2018\)](#) considered it to have direct association with purchase intentions. While some studies found a significant association of ethical identity with purchase intentions ([Dowd and Burke, 2013](#)) and risk reduction ([Khare and Pandey, 2017](#)), others indicated its association to be dependent on socio-demographic factors such as buying involvement ([Pino et al., 2012](#)) and age ([Hwang, 2016](#)). This study extends prior research by explaining the association of self-identity and ethical self-identity with consumers' WTP for organic food. Hence, we posit:

H8. Self-identity is positively associated with WTP for organic food.

H9. Ethical self-identity is positively associated with WTP for organic food.

2.4. Behavior and consequence: willingness to purchase and actual buying behavior

Research has indicated the importance of several variables for determining organic food intentions versus SBB. [Singh and Verma \(2017\)](#) reported the impact of different variables, including health consciousness, subjective norms, and price on SBB, along with the mediating influence of purchase intentions and attitude. Similarly, [Birch et al. \(2018\)](#) suggested that myriad factors such as environmental consciousness, egoistic motivations, and ethical identity are associated with consumers' inclination to purchase, as well as with the increased frequency of purchasing organic food. Their study offers some support to the hypotheses developed for the current study. According to previous studies, purchase intentions or WTP may be understood as the penultimate step to actual purchase ([Fleseriu et al., 2020](#)). We argue that from the perspective of the SOBC framework, WTP may be seen as a behavioral response to the need for consuming ethical, healthy, and safe food products like organic food. Subsequently, actual buying behavior may be understood as an overt consequence of this response, yet, compared to purchase intention or WTP, stated as well as actual buying behavior has seen relatively limited investigation in prior research. The prior literature also indicates a difference between the two variables in terms of significant antecedents ([Singh and Verma, 2017](#)).

Past research has indicated the existence of a significant gap amid consumers' willingness to buy (purchase intention), stated buying (intention to consume), and actual buying ([Qasim et al., 2019](#); [Singh and Verma, 2017](#)). Also referred to as the 'green gap' or 'green inconsistency' ([Chekima et al., 2017](#)), the prevalent difference between consumers' intent, purchase and consumption of organic food is one of the primary gaps in existing knowledge in this field of research ([Nuttavuthisit and Thøgersen, 2017](#)). There is a need to study the factors affecting this difference ([Chekima et al., 2017](#); [Singh and Verma, 2017](#)). This is supported by other scholars who have argued that sufficient research is not being directed toward identifying measures through which this gap may be bridged to inculcate sustainable patterns of organic food consumption behavior among individuals ([Shamsi et al., 2020](#)). This study posits that the internal state of the individual consumers, driven by values (openness to change, self-identity and ethical self-identity), will be associated with the development of a behavioral state of WTP for organic food. We further argue that SBB would share a consequential association with individuals' WTP for organic food. Thus, the following hypothesis is proposed:

H10. WTP is positively associated with SBB

2.5. The moderating role of buying frequency

Consumers' buying involvement (frequency of buying) related to organic food has been previously determined to create differential effects on their attitude as well as purchase intentions ([Eisinger-Watzl et al., 2015](#); [Kushwah et al., 2019a](#); [Pino et al., 2012](#)). Prior studies indicate significant individual differences in values, intentions, and behavior of buyers with different frequencies of buying organic food. For instance, [Kushwah et al. \(2019b\)](#) found a significant moderating effect of buying involvement on the association of value barriers and intentions. Similarly, [Tandon et al. \(2021\)](#) found that buying involvement positively moderated the association of SBB with nutritional content and risk barriers. Since buying involvement represents the frequency of buying, we have interpreted this as the buying frequency in this study. Accordingly, we have considered buyers with low, medium and high buying frequency.

In line with prior studies, we argue that the difference of buying frequency would be evident in the intensity of pro-environmental or ethical behavior enacted by consumers (Eisinger-Watzl et al., 2015), as well as their purchase intentions (Kushwah et al., 2019a). Therefore, in line with prior research, the present study anticipates a significant moderating effect of buying frequency on the associations shared between value, identity, WTP, and SBB for organic food.

H11a. Buying frequency positively moderates the association between openness to change and WTP, such that the association is stronger in the case of buyers with high buying frequency as compared to those with medium and low buying frequency.

H11b. Buying frequency positively moderates the association between self-identity and WTP, such that the association is stronger in the case of buyers with high buying frequency as compared to those with medium and low buying frequency.

H11c. Buying frequency positively moderates the association between ethical self-identity and WTP, such that the association is stronger in the case of buyers with high buying frequency as compared to those with medium and low buying frequency.

H11d. Buying frequency positively moderates the association between WTP and SBB, such that the association is stronger in the case of buyers with high buying frequency as compared to those with medium and low buying frequency.

2.6. Socio-demographics as control variables

The present study has utilized age, gender, personal income, and household income as control variables since they may have a confounding effect on the endogenous factors, namely, ethical consumption, identity, and purchase behavior (Hansen et al., 2018; Qasim et al., 2019). Two reasons drove our choice to utilize socio-demographic variables as control variables: First, many prior studies related to organic food consumption have utilized socio-demographic variables as control variables (e.g., Kushwah et al., 2019c; Tandon et al., 2021). Second, although prior research shows their influence on organic-food-related purchase and consumption decisions, there is an apparent lack of consensus on the effect of socio-demographic profiles of consumers on their decisions related to organic food items (Feil et al., 2020; Tandon et al., 2021). For instance, past research indicates the age of a consumer may result in differences in their organic food consumption behavior (Hwang, 2016). Similarly, male and female consumers have varied buying behavior for organic food in terms of the effect of antecedents (Hwang, 2016). We, therefore, controlled for the effect of age and gender in the present study. Additionally, prior studies suggested that higher amounts of disposable income among consumers may affect their organic food buying patterns (Hwang, 2016). Other studies have also indicated the importance of these variables (e.g., Hansen et al., 2018). Due to this, the present study has used the personal and household income of the study participants as control variables.

3. Data

3.1. Survey instrument and measurement scales

The questionnaire used for the data collection comprised seven constructs for which measurement items were adapted from previously validated scales (Table 1). Health consciousness was measured using a five-item scale adopted from the study of Hansen et al. (2018), whereas openness to change (Claudy et al., 2015), SBB

(Singh and Verma, 2017), ethical self-identity and FSC were measured using a three-item scales (Michaelidou and Hassan, 2008). To measure self-identity (Oh and Yoon, 2014) and WTP (Vassallo et al., 2009), we used a four-item scale. The validity and reliability of these scales were tested in the context of the present study, as reported later. The items utilized the 5-point Likert scale to gather participants' responses on a scale of one to five wherein a score of one indicated strongly disagree and five indicated strongly agree. We invited comments from three academicians from the field of marketing and food marketing regarding the clarity and content of the questionnaire. Minor modifications were made in the wording of three scale items based on the feedback received. Furthermore, we measured buying frequency by recording the frequency of purchase of organic food items wherein buyers with high frequency were identified as consumers who engaged in more frequent purchases (6 or more times per month), while buyers with medium frequency were identified as consumers who engaged in less frequent purchases (3–5 times per month) and buyers with low frequency were identified as consumers who engaged in quite a low number of purchases (1–2 times per month) of organic food items. The questionnaire also recorded participants' socio-demographic parameters of age, gender, personal and household income. The survey instrument was then tested through a pilot survey with 14 respondents representing the target population, i.e., existing buyers of organic food. Feedback from the pilot survey was used to modify the survey instrument, which was utilized for final data collection.

3.2. Data collection

The data was collected using an online cross-sectional survey while ensuring the adequate representation of gender, age, and buying frequency of organic food. The online survey was conducted by using the services of a leading Japanese market research firm, Macromill Inc. (Nagata, 2017). Data was collected using a probabilistic sampling technique in one wave by targeting respondents enrolled in panels with Macromill Inc. (n.d.), who were based in multiple cities across Japan.

The target age group was kept to adults aged 30–65 years, since the prior studies have mentioned that this is an important consumer group for organic food items, given their chances of having higher disposable incomes (Hwang, 2016). To begin with, the participants were questioned about their familiarity with organic food products through a screening question (Do you know about organic food products?) that was made available to survey participants along with a short description of organic food. Next, the survey participants were asked about their buying frequency in the past month on a scale of 1–10. The online survey platform of Macromill Inc. ensured automatic allocation of gender to maintain a balance in representing both male and female respondents. A total of 928 responses (50% females) were used for further analysis with a mean age of 47.20 (SD = 9.65) years. Personal and household income ranged from 2 to over 20 million Japanese Yen.

4. Data analysis and results

The analysis was conducted utilizing AMOS 26 and SPSS 26 statistical software. The details of the method and results are discussed as follows:

4.1. Data normalcy

To begin with, the normalcy of data was established. In this regard, the dataset was found to have no missing or unengaged responses. Furthermore, the skewness and kurtosis were tested,

Table 1
Study measures and factor loadings for the measurement and structural model.

Study Measures (Reference)	Measurement items	CFA	SEM
Health Consciousness (HC) Hansen et al. (2018)	HC1: I reflect on my health a lot	.82	.82
	HC2: I am very self-conscious about my health	.86	.86
	HC3: I am alert to changes in my health	.83	.83
	HC4: I am usually aware of my health	.62	.63
	HC5: I take responsibility for the state of my health	.60	.60
Food Safety Concern (FSC) Michaelidou and Hassan (2008)	FSC1: I am very concerned about the amount of artificial additives and preservatives in food	.81	.80
	FSC2: The quality and safety of food nowadays concerns me	.82	.83
Openness to Change (OTC) Claudy et al. (2015)	OTC1: I am always looking for new and surprising things to do	.81	.79
	OTC2: I look for adventure and like to take risks	.71	.71
	OTC3: I am open to new experiences	.70	.72
Self-Identity (SI) Oh and Yoon (2014)	SI1: My consumption is identical to my lifestyle	.77	.77
	SI2: My consumption is identical to my values	.89	.89
	SI3: My consumption is identical to my image	.86	.86
	SI4: My consumption is identical to my characteristics	.71	.71
Ethical Self-Identity (ESI) Michaelidou and Hassan (2008)	ESI1: I think of myself as someone who is concerned about ethical issues	.84	.86
	ESI2: I think of myself as an ethical shopper	.86	.83
Willingness to purchase (WTP) Vassallo et al. (2009)	WTP1: I am willing to purchase organic foods if they are available on the market	.85	.85
	WTP2: I intend to purchase organic foods if they are available on the market	.90	.90
	WTP3: I plan to purchase organic foods if they are available on the market	.87	.86
	WTP4: I will try to purchase organic foods if they are available on the market	.91	.91
Stated Buying Behavior (SBB) Singh and Verma (2017)	SBB1: I have been a regular buyer of organic foods	.76	.75
	SBB2: I still buy organic foods even though conventional alternatives are on sale	.90	.90
	SBB3: I never mind paying a premium price for organic foods	.82	.82

where all the values were found to lie between the recommended threshold value of |3| and |10| (Kline, 2005; Ursavaş and Reisoglu, 2016). Table 2 presents the descriptive statistics for the study constructs. Finally, a multicollinearity test was conducted where all the values were less than the suggested threshold of three. The values of the variance inflation factors were found to be 1 for the independent variables i.e. FSC and hygiene consciousness. Overall, the data was found to have no such problems due to non-response, and the data was considered fit for conducting further analysis. The sample of 928 respondents was carried forward for testing the hypothesized research model.

4.2. Common method bias

Harman’s single factor test was run to examine the common method bias. It revealed that the maximum variance explained by the considered study variables was 27.21%. This proves that common method bias is not an issue since the variance explained value is much less than the recommended threshold value of 50%.

4.3. Validity and reliability analysis

Confirmatory factor analysis was carried out for examining the validity and reliability of the study constructs. To begin with, the composite reliability and Cronbach’s alpha values for study measures were greater than 0.70 (Fornell and Larcker, 1981).

Table 2
Descriptive statistics of study constructs.

Construct	Items	Mean	SD	Skewness	Kurtosis
HC	5	3.41	.70	-.12	.54
FSC	2	3.19	.86	-.13	.05
OTC	3	2.67	.84	.02	-.15
SI	4	3.29	.67	.18	.70
ESI	2	3.02	.77	-.15	.60
WTP	4	2.96	.88	-.14	.03
SBB	3	2.11	.89	.62	.01

Note: WTP–Willingness to purchase, OTC–Openness to change, ESI–Ethical self-identity, SI–Self-identity, HC–Health consciousness, FSC–Food safety concern, SBB–Stated buying behavior.

Additionally, convergent validity was ensured since the average variance explained (AVE) for all study constructs was greater than 0.50. Furthermore, the AVE values were smaller than their corresponding CR values. Inter-correlations among study constructs were smaller than the square root of the AVE value for each one. This ensured the presence of discriminant validity. Finally, the model fit indices for the model were within the suggested threshold values ($\chi^2/df = 3.66$, $CFI = 0.96$, $TLI = 0.95$, $RMSEA = 0.05$) (Tabachnick and Fidell, 2007). The details regarding loadings, validity and reliability are presented in Tables 1 and 3.

4.4. Hypothesis testing

The proposed study hypotheses were validated using the structural equation modeling that returned good model fit ($\chi^2/df = 3.71$, $CFI = 0.94$, $TLI = 0.92$, $RMSEA = 0.05$). The study results supported hypotheses that HC shared positive correlation with openness to change (H1: $\beta = 0.16$; $p < .001$), self-identity (H2: $\beta = 0.49$; $p < .001$) and ethical self-identity (H3: $\beta = 0.43$; $p < .001$). Similarly, FSC shared significant correlation with openness to change (H4: $\beta = 0.14$; $p < .01$) and ethical self-identity (H6: $\beta = 0.09$; $p < .05$). In contrast, H5 was not supported since FSC was found to share negative correlation with self-identity (H5: $\beta = -0.19$; $p < .001$). The WTP positively correlated with openness to change (H7: $\beta = 0.36$; $p < .001$) and ethical self-identity (H9:

Table 3
Convergent and discriminant validity.

	α	CR	AVE	MSV	ASV	WTP	OTC	ESI	SI	HC	FSC	SBB
WTP	.93	.93	.78	.57	.19	.88						
OTC	.78	.79	.55	.14	.07	.36	.74					
ESI	.84	.84	.72	.21	.11	.30	.27	.85				
SI	.88	.88	.65	.14	.04	.08	.10	.31	.81			
HC	.87	.87	.57	.26	.14	.36	.17	.46	.37	.76		
FSC	.80	.80	.66	.26	.12	.47	.14	.29	.05	.51	.82	
SBB	.86	.87	.68	.57	.17	.75	.38	.33	.09	.27	.35	.83

Note: α –Cronbach’s alpha, CR–Composite reliability, AVE–Average variance extracted, MSV–Maximum shared variance, ASV–Average shared variance, WTP–Willingness to purchase, OTC–Openness to change, ESI–Ethical self-identity, SI–Self-identity, HC–Health consciousness, FSC–Food safety concern, SBB–Stated buying behavior.

$\beta = 0.27; p < .001$). Conversely, self-identity was not associated with WTP (**H8**: $\beta = -0.02; p > .05$), thereby indicating support for **H7** and **H9** and lack of support for **H8**. Finally, **H10** was supported since SBB was also found to be positively correlated with WTP ($\beta = 0.75; p < .001$). The structural model explained the variance for the different dependent variables as follows: 16.1% for openness to change, 18.7% for self-identity, 25.3% for ethical self-identity, 21.9% for WTP and 58.3% for SBB (see Fig. 2, Table 4).

4.5. Moderation analysis

The process macro in SPSS was used to perform the moderation analysis. The analysis revealed that buying frequency positively moderated the association of self-identity with WTP and WTP with SBB (Table 5). However, it did not moderate the relationship of openness to change and ethical self-identity with WTP. Therefore, H11b and H11d were supported while H11a and H11c were not supported. The moderating influences are presented in Figs. 3 and 4. Fig. 3 shows that users with high buying frequency have high WTP in general for varying intensities of self-identity. On the other hand, users with medium and low buying frequency have WTP quite close to each other for different intensities of self-identity. Similarly, Fig. 4 reveals that the users with the highest WTP were found to have high SBB in the case of both low and high buying frequency. In contrast, the users with medium buying frequency were found to have higher SBB for the ones with low WTP as compared to those with higher WTP. In general, high buying frequency was found to reflect high SBB for users with varied intensities of WTP.

Table 4
Confirmation of hypotheses.

Hypothesis	Path	B	p	Supported (Yes/No)
H1	HC→OC	0.16	<0.001	Yes
H2	HC→SI	0.49	<0.001	Yes
H3	HC→ESI	0.43	<0.001	Yes
H4	FSC→OC	0.14	<0.01	Yes
H5	FSC→SI	-0.19	<0.001	No
H6	FSC→ESI	0.09	<0.05	Yes
H7	OC→WTP	0.36	<0.001	Yes
H8	SI→WTP	-0.02	>0.05	No
H9	ESI→WTP	0.27	<0.001	Yes
H10	WTP→SBB	0.75	<0.001	Yes

Note: WTP–Willingness to purchase, OC–Openness to change, ESI–Ethical self-identity, SI–Self-identity, HC–Health consciousness, FSC–Food safety concern, SBB–Stated buying behavior.

4.6. Control variables

The study results suggest that age had confounding effect on openness to change ($\beta = -0.22, p < .001$), along with gender ($\beta = -0.24, p < .001$) and personal income ($\beta = 0.11, p < .05$). In addition, age ($\beta = -0.07, p < .05$), gender ($\beta = -0.10, p < .01$) and household income ($\beta = 0.11, p < .05$) had confounding effect on self-identity. Furthermore, gender had confounding effect on other variables such as ethical self-identity ($\beta = -0.08, p < .05$), WTP ($\beta = 0.11, p < .01$), and SBB ($\beta = -0.10, p < .001$).

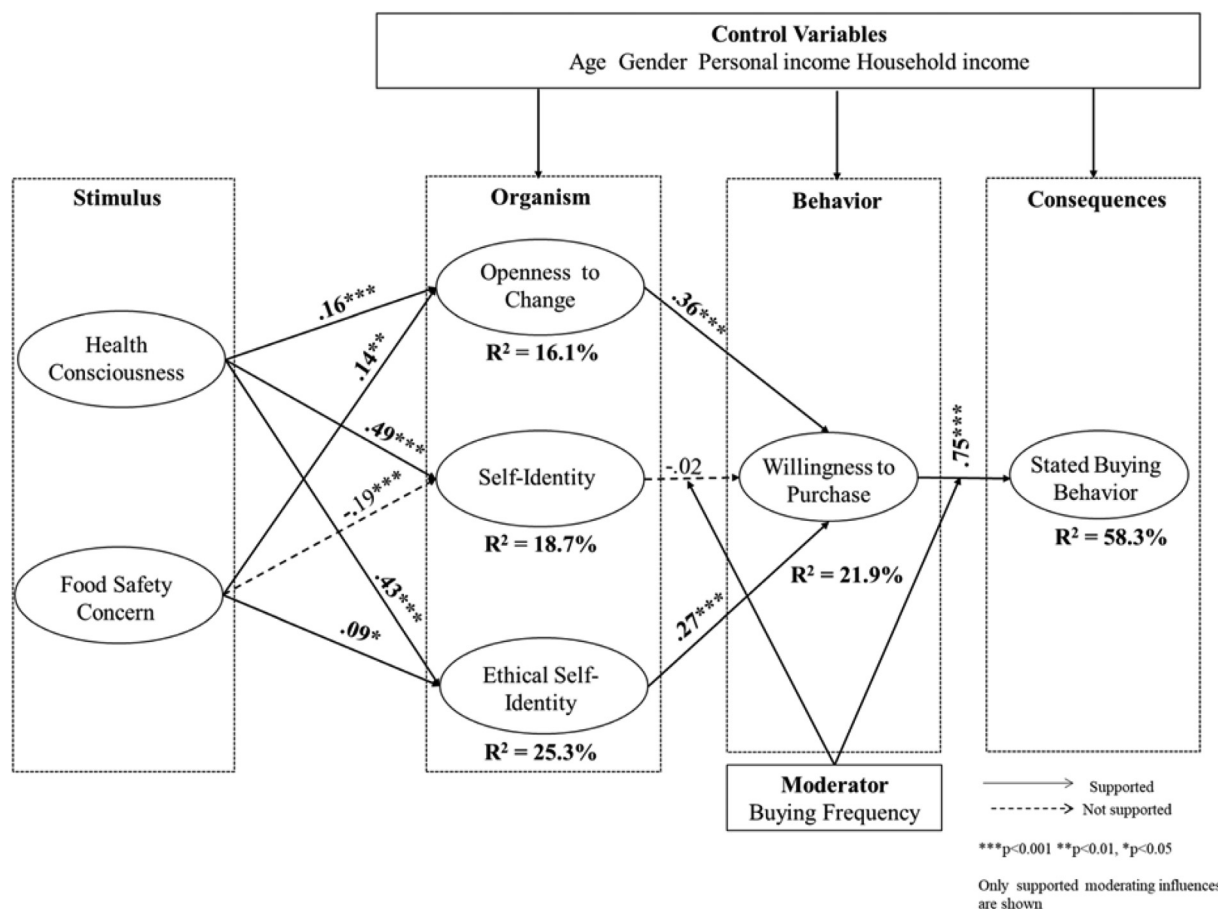


Fig. 2. Results of hypotheses testing.

Table 5
Results of moderation analysis.

Buying frequency							
	β	t	P	LLCI	ULCI	Moderation?	
OTC \rightarrow WTP	-.01	-1.47	.14	-.0242	.0035	No	
SI \rightarrow WTP	.03	3.81	.00	.0162	.0507	Yes	
ESI \rightarrow WTP	.01	.70	.49	-.0098	.0207	No	
WTP \rightarrow SBB	.02	3.80	.00	.0119	.0373	Yes	

Note: WTP—Willingness to purchase, OTC—Openness to change, ESI—Ethical self-identity, SI—Self-identity, SBB—Stated buying behavior.

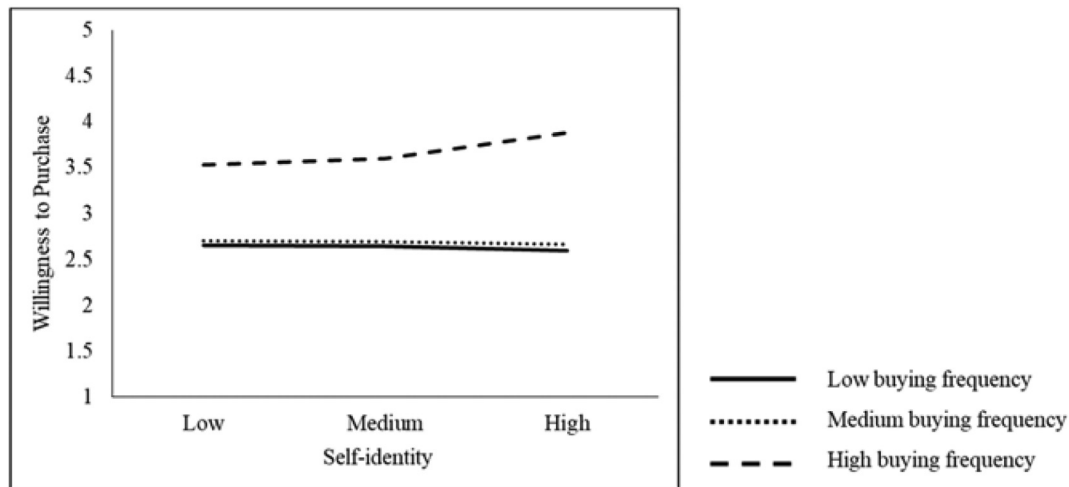


Fig. 3. Moderating influence of buying frequency on the association between self-identity and willingness to purchase.

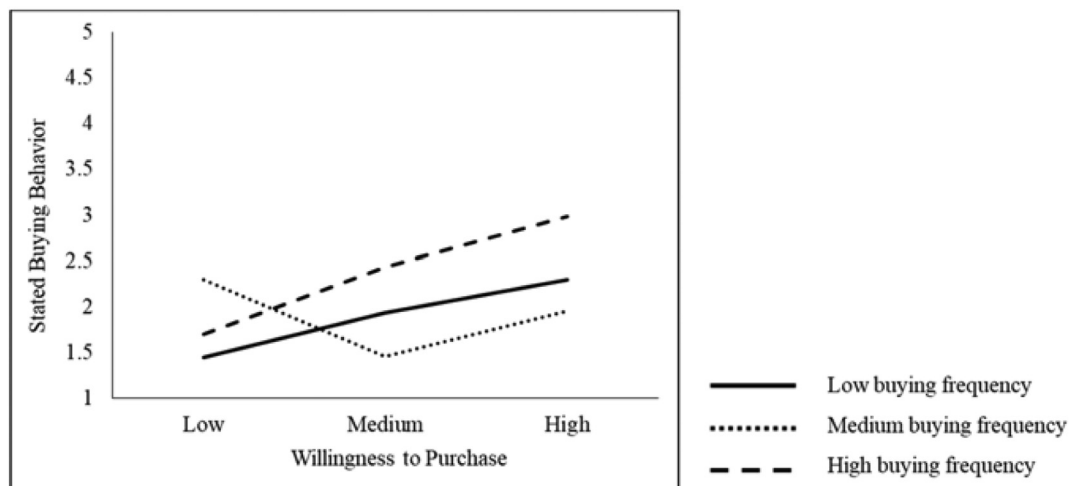


Fig. 4. Moderating influence of buying frequency on the association between willingness to purchase and stated buying behavior.

5. Discussion

The study proposed to investigate the organic food buying behavior of Japanese consumers using the SOBC paradigm. Path analysis of cross-sectional data collected from 928 respondents revealed support for most of the associations hypothesized by the study.

H1, proposing a positive association of health consciousness with openness to change, was supported in consonance with prior extended findings (Hansen et al., 2018; Mainardes et al., 2017). This finding implies that consumers who are self-conscious and assume

responsibility for their health are likely to be open to the new experience of organic food consumption and the change that it could bring in their lives. Thus, as argued by Kushwah et al. (2019c), such health-conscious consumers will be interested in maintaining personal or familial health, which can act as a stimulus impacting the internal factor (O) represented by openness to change for organic food. Similarly, H2 and H3, proposing an association of health consciousness with self-identity and ethical self-identity respectively, were also supported, in agreement with prior literature (Kim, 2019; Qasim et al., 2019). Our findings imply that health consciousness will stimulate individual psychological factors such

as self-identity and ethical self-identity in consumers whose consumption aligns with their values, and consider themselves ethical shoppers, resulting in certain behavior toward organic food consumption.

H4 and H6, proposing FSC as a stimulus to individual psychological factors such as openness to change and ethical self-identity, were also supported, in congruence with existing evidence (Michaelidou and Hassan, 2008). These statistically significant associations are probably the outcomes of the fact that consumers with high concern for food safety may consider organic food to be safe due to the absence of chemical constituents in the production process of food items, as contended by Pham et al. (2019) and this acts as a stimulus for their internal factors represented by openness to change and ethical self-identity. This implies that FSC related to traditionally grown or processed food items in terms of artificial additives and preservatives will be positively associated with the internal factors that can potentially drive the ethical behavior of consumers who display a willingness to increase their organic food consumption to contribute to environmental welfare. However, H5 was not supported and we unexpectedly found FSC to be negatively correlated with self-identity. We believe that this finding may be related to the unique characteristics of Japanese consumers and may be attributed to the context specificity of the studied sample or geographic region. Japanese consumers may display a distinction between self-identity and ethical self-identity but further research is needed before we can draw any generalizable conclusions with respect to these factors.

In sum, health consciousness and FSC serve as stimuli for consumers with traits such as openness to new experience, congruence of consumption with image, and concern about ethical issues, which, in turn, inspire affirmative behavior toward organic food consumption. Further, the association of HC and FSC with the positive manifestation of values, self-identity, and ethical self-identity can intuitively be understood to rest on consumers' perception that organic foods offer a healthy and safe alternative to conventionally grown food.

H7 and H9, proposing a positive association of WTP organic food with openness to change and ethical self-identity, were supported by the results of our study. This implies that consumers with individual psychological make-up, such as seeking new things, experiences, and surprises, taking risks, aligning consumption with lifestyle, and being ethical shoppers will exhibit an innate intention to consume organic food products contingent on their availability. These findings are, as anticipated, based on prior extended literature (Hansen et al., 2018; Khare and Pandey, 2017; Mainardes et al., 2017). These results confirm the link between ethically-driven Japanese consumers' consumption-related decision-making and positive intention toward organic food consumption. The significance of these findings can be appreciated from the fact that WTP represents a positive mindset that is just a step away from the actual execution of purchase (Fleseriu et al., 2020). In comparison, H8, proposing a positive association of self-identity with WTP, was not supported. Though we were expecting a positive outcome based on prior findings, self-identity is an under-explored factor in research on organic food, as argued by Hwang (2016), and Pino et al. (2012) and an insignificant association is also quite plausible. We contend that this is possible since consumers, despite being health-conscious and harboring FSC, may not think that organic food consumption is aligned with their image and lifestyle. This probably also explains why, despite societal drive and positive intentions, there is a limited conversion of consumers' WTP into organic food purchase, as argued by Nuttavuthisit and Thøgersen (2017). However, we feel that this association needs to be

explored further by collecting more data and also investigating the role of demographic factors (controlled in the present study) in influencing the hypothesized association.

H10, positing the positive association of WTP with SBB, was supported by the findings. In the context of the SOBC framework, SBB is the covert consequence of WTP, which, as mentioned above, is posited as a behavioral response. This finding puts the 'green gap' or 'green inconsistency' (Chekima et al., 2017) in perspective. By revealing stated purchase as a consequence of intention driven by consumers' internal factors such as openness to change and ethical self-identity, we attempt to offer an insight into probable causes of the gap found by prior scholars between consumers' WTP and SBB (Qasim et al., 2019; Singh and Verma, 2017). Our findings indicate the probability that the conflict between self-identity and ethical self-identity, consumers' inability to relate to organic food as a new consumption experience, premium prices, and inconvenience in finding these products may be a driving force behind the intention–actual behavior gap. However, these factors need to be explored further before any firm conclusion can be drawn.

With regard to the moderating influences, only H11b and H11d were supported by the findings. This implies that buying frequency positively moderates the association of self-identity and WTP, as well as that of WTP and SBB. Our findings align with prior literature, which has noted significant individual differences in the behavior of organic food buyers with high buying frequency as compared to those with low buying frequency (Kushwah et al., 2019a, 2019b; Tandon et al., 2021). This implies that the effect of self-identity will be stronger for buyers with high frequency than those with medium and low buying frequency. Along similar lines, our findings indicate that users with higher WTP would exhibit higher SBB in the case of high as well as low buying frequency. Moreover, higher buying frequency would, in general, reflect higher SBB for individuals who exhibit different degrees of WTP. Our findings indicate the probability that existing buyers have already formed an initial trust in organic food products. Prior research on innovative products and services has offered evidence that pre-adoption initial trust influences post-adoption continuation intentions through perceived usefulness (e.g., Talwar et al., 2020). In comparison, H11a and H11c, proposing the moderating effect of buying frequency on the association of openness to change and ethical self-identity with WTP, were not supported. This is not in line with prior extended literature (e.g., Eisinger-Watzl et al., 2015) and a possible reason for this finding may be the context-specific nature of the Japanese market and/or the examined sample. However, the insignificant moderating influence revealed by our results needs to be tested with a larger variety of samples drawn from the general population in Japan before it can be accepted conclusively.

6. Conclusion

Organic food consumption is anecdotally recognized as a reflection of healthy consumption behavior. However, the use of organic food items has not yet diffused widely, and scholars have noted that a gap exists between consumers' WTP and stated preferences as well as buying organic food. There have been calls for a better understanding of consumer choice behavior toward organic food, especially in terms of understanding SBB. Our study is an effort to investigate empirically consumers' organic food buying behavior. It is the first study to invoke the SOBC paradigm to offer an intensive view into the breadth of the process that consumers undertake while considering the purchase of organic food.

With regard to RQ1 (study of factors that are positively associated with Japanese consumers' willingness to purchase organic

food), the results of our study suggest that within the SOBC framework, health consciousness and FSC act as stimuli (S) for individuals (O). These individuals, represented by three internal factors (openness to change, self-identity, and ethical self-identity), are in turn, positively related to WTP. Coming to RQ2, our results confirmed a significant association between WTP and SBB. In the SOBC context, our findings confirmed that SBB is a consequence (C) of WTP (B). To capture the influence of individual differences on the hypothesized relationships, we also tested the moderating influence of customers' buying frequency. Significant positive moderating influence of buying frequency was found on the association of self-identity with WTP and WTP with SBB. The study offers interesting implications for researchers, organic food marketers, and retailers, as discussed below.

6.1. Theoretical implications

This study offers four primary contributions to theoretical knowledge in this field of research. First, the study makes a key contribution by utilizing the SOBC framework to the model behavioral response of consumers toward organic food and is the first empirical study to use the SOBC paradigm in this context. Consumption of organic food has been identified as healthy and safe behavior, both anecdotally and by academic research (e.g., Molinillo et al., 2020; Pham et al., 2019). A comprehensive theory like SOBC can provide future researchers with a wider scope for investigating organic food consumer behavior. Second, the study contributes to the literature by addressing the intention–behavior gap in research. This gap has not yet been extensively explained by research in terms of the causes for the disparity between WTP and SBB for organic food. Similarly, research has provided a limited explanation of or ideas for promoting more sustained patterns of organic food consumption, as argued by Shamsi et al. (2020). We reveal that stated buying is an overt consequence of the behavioral response of consumers to internal psychological factors.

Third, the study spotlights the behavior of Japanese consumers in regard to organic food. Findings bridge the gap of deficient theoretical knowledge on unique characteristics of Japanese consumers and their responses to organically grown food items. The findings, therefore, improve academic knowledge in the context of organic food for two key segments of interest for researchers: developed economies and Asia. Finally, by suggesting that the moderating effect of buying frequency on associations between WTP and SBB is probably attributable to the initial trust that the existing buyers form in organic food, the present study opens a new area of research on pre-adoption behavior of consumers toward organic food.

6.2. Practical implications

The study offers four key inputs for practice, for producers, marketers of organic food, and even governments that undertake policy-making decisions. First, the finding that health consciousness and FSC stimulate behavioral responses to organic food by positively impacting internal psychological factors implies that the producers of organic products should specifically emphasize the safety and health value offered by their products in terms of nutritional content. To showcase the superiority of organic food items over traditionally produced and processed items, organic food producers can label their products to present comparative nutritional facts (organic versus non-organic). Placing such information on the product itself will make relevant information available at the point of purchase, and it might reduce the gap between WTP and purchases.

Second, since ethical self-identity emerged as a statistically

significant internal determinant of Japanese consumers' WTP for organic food items, marketing firms should evolve strategies focused on societal marketing. Societal marketing is based on a win–win paradigm for both society and consumers. Such strategies are likely to appeal to organic consumers, driven not only by motives such as health consciousness and FSC but also by ethical concerns. This is particularly relevant for Japanese consumers, who tend to believe in homogeneity of their society, and have a noticeable sense of group and national identity.

Third, since our findings indicate that buying frequency can increase the association between WTP and SBB, we recommend the need for marketers to focus on non-buyers to overcome the resistance they may have toward organic food items. Advertisements should focus specifically on non-buyers by highlighting the benefits of engaging in organic food consumption and by posting positive reviews by existing organic food users.

Finally, the findings of our study can help the Japanese government and marketers in encouraging healthy and safe consumption habits in the citizens. By running campaigns that create awareness about organic food consumption and sustainability-oriented behavior, the government and marketers can target the entire SOBC chain, as discussed in the study. This implies that the awareness campaign messages should include the entire SOBC spectrum proposed by us including stimulus (healthy eating), organism (value, self-identity and ethical consideration), and finally calling for action (buying) by providing a list of all retail outlets where government-certified organic food can be procured.

6.3. Limitations and future scope

While considering the findings of our study, researchers should keep in mind the following three limitations: First, we have used self-reported data for analysis, which may have been affected by limitations such as the social desirability bias and imposes generalizability and validity limitations on the results. Second, the study focuses on a single geography, which limits its generalizability to other geographies and contexts. Third, the study has collected cross-sectional data at a singular point in time without contemplating any use of interventions or measuring their effect on the 'green gap.'

Future researchers can overcome these limitations by (a) replicating our study in different geographies to test the robustness and generalizability of our findings, (b) using objective measures of buying behavior to assess consumers' buying frequency and patterns to derive more generalizable and nuanced insights, (c) conducting experimental and longitudinal studies by introducing interventions such as testimonials of existing organic food consumers, affirmative messages of medical professionals, and awareness campaigns run by governments. Additionally, future researchers should undertake more studies to investigate the reasons for consumers' resistance to purchasing organic food and devote significant attention to the pre-adoption resistance of non-buyers toward organic food consumption. Finally, since food consumption is a phenomenon that is linked to culture, geography and economy, future studies on organic food consumption behavior should include qualitative study to capture the related nuances in detail.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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