Research article

Understanding online purchase intention of plant-based foods: Exploring causal factors and moderating role of self-efficacy within the SOR theory

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A R T I C L E   I N F O

A B S T R A C T

This research explored Thai consumers' online purchase intention for plant-based foods (PBFs), investigating factors shaping this intention and the impact of self-efficacy. Conducting surveys on 402 individuals from Bangkok, Thailand, the study employed structural equation modelling (SEM) to analyse relationships among consumer identity, online brand trust, social influence, perceived value, and self-efficacy concerning online purchase intention. Findings revealed significant influences of consumer identity, online brand trust, social influence, and perceived value on online purchase intention, with online brand trust having the most significant direct effect. Additionally, self-efficacy moderated the impact of these factors on online purchase intention. The study's contribution lies in highlighting the role of online brand trust and self-efficacy levels in shaping consumer behaviour, which is crucial for promoting sustainable dietary choices and improving well-being through digital marketing strategies.

1. Introduction

The global consumption of plant-based foods (PBFs) has seen a remarkable surge [1], reflecting a growing trend towards more mindful and sustainable dietary choices. This burgeoning movement signifies a fundamental shift in consumer behaviour, with individuals increasingly opting for plant-based alternatives due to various reasons, including health consciousness, environmental concerns, and ethical considerations [2]. Health-centric motivations drive a significant portion of this trend [3], as consumers seek out plant-based options for their perceived health benefits, including lower cholesterol levels and reduced risk of chronic diseases [4,5]. Additionally, heightened awareness of the environmental impact of food choices has led many consumers to embrace plant-based diets as a more sustainable option [6], given their lower carbon footprint compared to animal-based products [7]. Moreover, the ethical considerations surrounding animal welfare have influenced consumers to gravitate towards PBFs as a more humane choice [8]. This growing trend not only reflects a change in dietary preferences but also signals a larger societal movement towards more conscientious and compassionate consumption habits [9].

Understanding consumer behaviour in the digital sphere is crucial in today's market environment [10], which is characterised by quick technological advancements [11] and shifting consumer preferences [12,13]. The digital sphere serves as a primary arena where consumers interact, research, and make purchasing decisions [12,14]. In this environment, comprehending consumer behaviour

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becomes pivotal for businesses aiming to thrive and succeed [15]. Insights into how individuals navigate online platforms, their preferences, motivations, and decision-making processes are crucial for developing effective marketing strategies, enhancing user experiences, and tailoring products or services to meet specific consumer needs [16]. Moreover, with the proliferation of e-commerce and the increasing reliance on digital channels, gaining an in-depth understanding of consumer behaviour in the digital realm becomes essential for businesses to remain competitive [17], build strong customer relationships [18], and adapt to the ever-changing dynamics of the online marketplace [19].

While the current body of literature acknowledges the increasing trend of online grocery purchases concerning food products [20–23], there is a scarcity of comprehensive understanding and quantitative research in deciphering the intricate causal factors influencing the online shopping behaviour of plant-based food products. Researchers have predominantly relied on the Theory of Planned Behaviour (TPB), emphasising attitudes, subjective norms, and perceived behavioural control to understand behavioural responses. However, it falls short in explaining why individuals hold specific attitudes [24] and, potentially, online purchase intentions. This limitation impedes the exploration of underlying mechanisms for effective and comprehensive changes in consumer behaviour in online grocery shopping, especially in plant-based food contexts. While the TPB focuses on individual beliefs and conscious decision-making, the stimulus-organism-response (SOR) theory takes a more holistic approach by considering both external stimuli and internal processes [25]. The SOR theory serves as a foundational framework for understanding consumer behaviour [26], particularly regarding online purchase intention (OPI) towards PBFs. According to this theory, the behavioural response (Response: R) of online purchase intention originates from two distinct groups of causal factors: the psychological determinants (Stimulus: S) encompassing perceived value (PV), social influence (SI), and consumer identity (CI); and the engagement factor and consumer perception (Organism: O) comprising social media communication (SMC), online brand trust (OBT), and attitude toward PBFs (AT).

This research aims to fill the existing research gap through the examination of the following research questions: 1) to construct and validate a comprehensive structural equation model (SEM) that elucidates the intricate interrelationships among PV, SI, CI, SMC, OBT, and AT, aiming to understand their combined impact on OPI employing the SOR theory and 2) to investigate the moderating effect of self-efficacy (SE) within this model, specifically examining its influence on pivotal connections between essential determinants such as PV, SI, CI, SMC, OBT, and AT—and OPI. These research objectives seek to unravel the complex dynamics of consumer behaviour in the context of online purchase intentions for PBF products and the influencing factors within the SOR theoretical framework.

2. Literature review and hypothesis development

2.1. Consumer behaviour in online food purchases

Consumer behaviour in online food purchases represents a dynamic intersection of digital commerce and individual preferences [27], reshaping how individuals discover, evaluate, and procure food products. The advent of online platforms has revolutionised traditional food purchasing patterns, offering consumers convenience, accessibility, and an extensive array of choices [27]. In this digital landscape, consumer behaviour is influenced by various factors, including ease of navigation, personalized recommendations, user-generated reviews, and accessibility to detailed product information [28]. Additionally, societal shifts towards health consciousness, sustainability, and convenience have propelled the surge in online food shopping [29]. The decision-making process involves a fusion of rational choices and emotional responses [30] as consumers seek quality, value, and reliability in their online food purchases [31]. Understanding consumer behaviour in online food purchases involves deciphering the intricate interplay between technological advancements, consumer preferences, marketing strategies, and the evolving dynamics of the digital marketplace [32].

2.2. Stimulus-organism-response (SOR) theory in consumer behaviour

The stimulus-organism-response (SOR) theory provides a comprehensive framework for understanding consumer behaviour, particularly in the context of purchase intention towards PBFs [33]. In this theoretical construct, cognitive and affective responses belonging to so-called consumer behaviour (Response: R) are perceived as a consequence of interactions between external stimuli (Stimulus: S) and internal cognitive and emotional processes within the individual (Organism: O) [34,35]. In the realm of online purchase intention for PBFs, this theory is instrumental in unravelling the factors influencing consumer decisions [36]. The SOR framework delineates the external stimuli, encompassing psychological determinants such as perceived value [37], social influence [38], and consumer identity [39], which trigger cognitive processes. Simultaneously, it examines the internal cognitive factors, including public perception or knowledge through social media communication [40], online brand trust [41], and attitudes [42], reflecting the individual's perceptions and emotional reactions. Applying the SOR theory in the context of PBFs enables researchers to explore how these stimuli, both external and internal, converge to influence consumers' intentions to purchase PBFs online. Understanding the interplay between these elements within the SOR framework might elucidate the complex mechanisms shaping consumer behaviour in the digital landscape concerning PBF choices, shed light on pivotal factors driving online purchase intentions, and pave the way for tailored marketing strategies and enhanced consumer engagement.

2.3. Online purchase intention for PBFs: current trends and patterns

Recently, research indicates a rising trend in online shopping's prevalence [43]. This online purchase for different food products, including PBFs, has showcased evolving consumer preferences and societal shifts towards digital marketing [44]. The burgeoning interest in plant-based diets is mirrored in the surge of online platforms offering an extensive array of food options [45]. Consumers

increasingly seek PBF products for reasons spanning health consciousness, ethical considerations, environmental sustainability, and animal welfare [2,6–8]. The convenience, accessibility, and diverse offerings available through e-commerce platforms have fueled this trend [27], attracting a broader consumer base interested in exploring and incorporating plant-based alternatives into their diets. Moreover, the COVID-19 pandemic accelerated the digital transformation of food shopping [46], prompting individuals to embrace online channels for purchasing groceries, including PBF items. The current trends highlight a growing inclination towards PBFs in online markets, emphasising a paradigm shift in consumer preferences and setting the stage for continued growth and innovation in this niche market segment [47].

2.4. Psychological determinants: perceived value, social influence, and consumer identity

Psychological determinants including trust, engagement, perceived value, and social presence, significantly shape and steer online purchase intentions, encompassing multifaceted aspects that impact consumer decision-making in the digital realm [48]. Among these determinants, perceived value (PV) plays a pivotal role, reflecting the subjective assessment of the benefits versus the costs associated with a product. The findings of Bonsón Ponte et al. [49] suggest that online purchase intention relies on perceived value, specifically perceived information quality and security. PV represents the comprehensive judgment made by consumers regarding a product's usefulness, considering the perceived costs (expenses or trade-offs) and benefits (gains) obtained [50]. It entails an assessment that weighs what is gained against what is sacrificed in a transaction [51]. In the context of food products, consumers assess the worth and utility of PBFs, considering factors such as nutritional value, perceived health benefits [52], and pricing [53]. Additionally, social influence (SI), another psychological determinant, exerts considerable sway on online purchase intentions, where consumers are influenced by peer recommendations, social media trends, and the opinions of family and friends regarding PBF choices [54]. Moreover, consumer identity (CI), representing an individual's self-concept and values, influences online purchase intentions by aligning personal beliefs with the ethos of plant-based lifestyles or ethical considerations. Erikson [55] defines identity as a sphere within psychosocial development that encapsulates an individual's perception of self—how one perceives oneself. Thus, a vegetarian identity encompasses an individual's thoughts, emotions, and actions related to adopting a vegetarian lifestyle [56]. Overall, these psychological determinants collectively shape the cognitive and emotional aspects driving consumers' decisions when contemplating online purchases of PBFs. Understanding and dissecting these determinants is crucial in delineating the intricate web of influences that steer consumer behaviours in the digital sphere.

2.5. Consumer perception and engagement: social media communication, online brand trust, and attitude

Consumer perception involves the process through which individuals select, organise, and interpret information to make sense of stimuli [57]. On the other hand, consumer engagement entails consumers actively interacting with brands, demonstrating commitment, and forming relationships with them [58]. Consumer perception plays a vital role in influencing consumer engagement. For example, consumers often assess product quality and performance based on sensory cues [59], impacting their engagement with the brand. Conversely, consumer engagement also impacts consumer perception. Engaging with brands through social media communication (SMC), online communities, or other platforms can shape consumers' perceptions of the brand's values, reputation, and trustworthiness [60].

Social media denotes digital technologies that prioritise user-generated content or interaction [61]. The empirical results showed that social media exposure was a significant driver of consumer behaviour through altering the evaluation of product characteristics and purchasing choices [62]. Platforms like Instagram, Facebook, and YouTube foster communities, allowing users to share experiences and information, thus influencing consumer perceptions and preferences.

Brand trust refers to the confidence and reliance consumers have in a brand's ability to meet their expectations and deliver on its promises [63]. The impact of brand trust (hereafter referred to as online brand trust or OBT) on online purchase intention is well-established in the literature, as it reduces perceived risk and fosters relationships with customers [64–66]. Consumer trust in Internet vendors is receiving increased attention, as highlighted by Chen and Dhillon [67] in their paper proposing three fundamental dimensions: competence, integrity, and benevolence. Competence reflects the company's ability to fulfil consumer promises, while integrity signifies consistent, reliable, and honest behaviour. Additionally, benevolence underscores a company's commitment to prioritising consumer welfare over its own self-interest. Consumers rely on reviews, brand credibility, and a positive online presence to develop trust and confidence in PBF brands. The positive impact of brand credibility on brand trust implies that consumers will have more trust if brands contain reliable information about products [68].

Attitudes (AT) refer to learned predispositions to consistently respond favorably or unfavorably towards a given object [69]. Typically, attitudes include cognitive aspects (beliefs and thoughts), affective elements (emotions and feelings), and conative components (behavioural intentions) [70]. They are influenced by various factors such as personal experiences, social norms, cultural background, and marketing communications [69]. Research indicates that attitudes significantly predict purchase intentions, with a positive attitude towards a product or service correlating with a higher intention to purchase [71]. Attitudes can mediate the relationship between different variables, such as environmental concern, perceived effectiveness, and functional value, on purchase intentions [72].

Understanding these multifaceted factors within the realm of online behaviour is crucial for businesses aiming to enhance consumer engagement and foster positive perceptions of PBF products in the digital sphere. The aforementioned research led to the development of the following assumptions.

H1. Attitude will positively influence online purchase intention.

H2. Online brand trust will positively influence online purchase intention.

H3. Consumer identity will positively influence attitude.

H4. Social influence will positively influence attitude.

H5. Social media communication will positively influence online brand trust.

H6. Perceived value will positively influence online brand trust.

H7. Consumer identity will positively influence social media communication.

H8. Social influence will positively influence social media communication.

H9. Perceived value will positively influence social media communication.

2.6. Self-efficacy: a moderating factor in online purchase intentions

Self-efficacy (SE) represents an individual's belief in their ability to accomplish specific tasks, achieve goals, or perform effectively in various situations [73]. Coined by psychologist Albert Bandura [74], this concept emphasizes the personal conviction in one's skills, capabilities, and capacity to overcome challenges and attain desired outcomes. The relationship between self-efficacy and online purchase intention has been extensively studied. Customers place value on self-efficacy based on their experiences, as they feel more confident in completing an online purchase [75]. Ong et al. [76] discovered that self-efficacy and perceived severity of COVID-19 had a positive impact on attitudes and purchase intentions. Furthermore, Wang et al. [77] showed that ethical self-efficacy influences purchasing intentions and strengthens the effect of perceived value on intentions to purchase online content. Hanss et al. [78] emphasised that perceptions of indirect impact gained through encouraging others to contribute to sustainable development, a component of self-efficacy, were strongly associated with purchasing intentions. These findings collectively suggest that self-efficacy plays a crucial role in shaping online purchase intentions by influencing consumers' confidence, perceptions, and behaviours in the
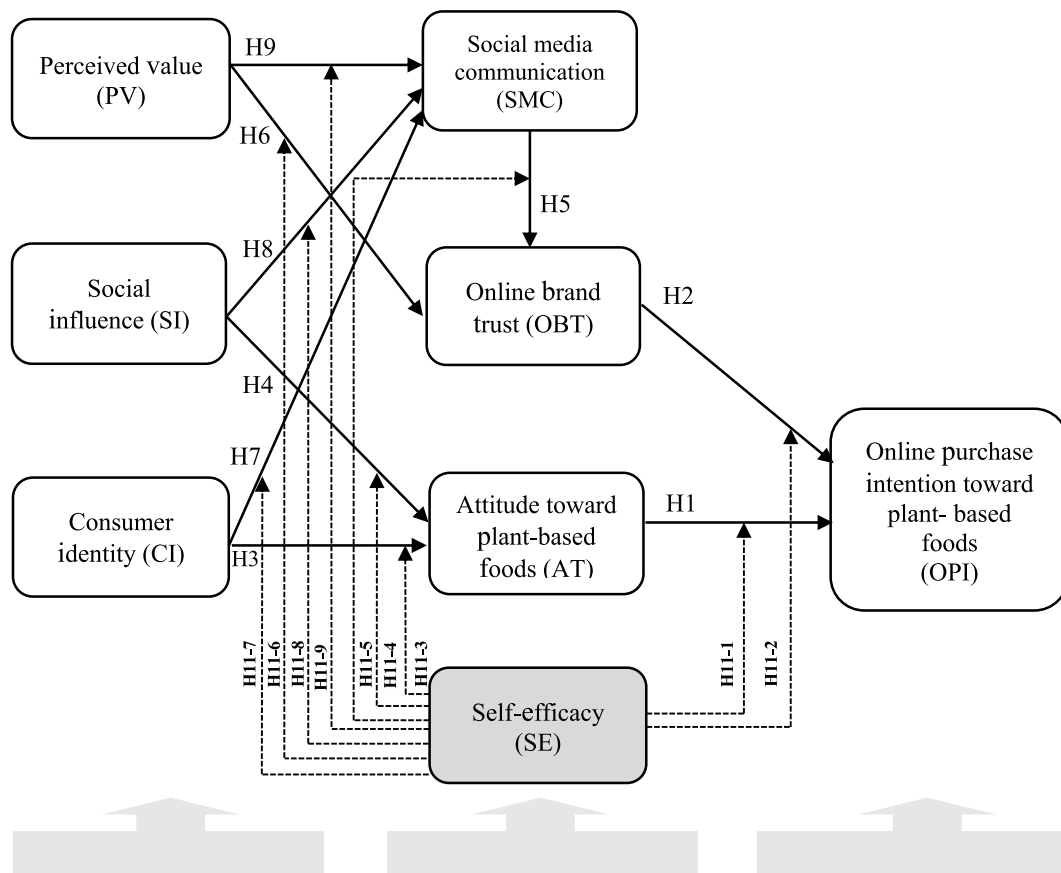

Fig. 1. The proposed conceptual model.

online shopping environment. However, there is a research gap on the relationship among self-efficacy, attitude, online brand trust, social influence, social media communication, perceived value, consumer identity, and online purchase intention, which is a complex interplay involving various psychological and marketing factors. Hence, SE is a strong predictor of subsequent task-specific performance.

This study aims to explore the potential moderating role of SE in the context of online purchase intentions, specifically focusing on the acquisition of PBF items. SE represents an individual's belief in their capability to accomplish tasks and achieve goals within the digital realm. High levels of SE empower consumers, boosting their confidence in navigating online platforms, assessing products, and making informed choices when selecting PBF products. The primary objective is to investigate whether SE moderates the connections between essential determinants—such as PV, SI, CI, SMC, OBT, and AT—and OPI. Understanding self-efficacy's role as a moderator is crucial, as it sheds light on how individuals' confidence and beliefs shape their behaviours, subsequently impacting their decisions within the digital market for PBFs. Consequently, the study proposes the following hypotheses.

Hypothesis 11-1. Self-efficacy moderates the effects of attitude on online purchase intention.

Hypothesis 11-2. Self-efficacy moderates the effects of online brand trust on online purchase intention.

Hypothesis 11-3. Self-efficacy moderates the effects of consumer identity on attitude.

Hypothesis 11-4. Self-efficacy moderates the effects of social influence on attitude.

Hypothesis 11-5. Self-efficacy moderates the effects of social media communication on online brand trust.

Hypothesis 11-6. Self-efficacy moderates the effects of perceived value on online brand trust.

Hypothesis 11-7. Self-efficacy moderates the effects of consumer identity on social media communication.

Hypothesis 11-8. Self-efficacy moderates the effects of social influence on social media communication.

Hypothesis 11-9. Self-efficacy moderates the effects of perceived value on social media communication.

Based on the literature, this study applied the SOR conceptual model illustrated in Fig. 1.

3. Methodology

3.1. Population, sampling, and sample size calculation

The population refers to general consumers who have social media user accounts, are aged 18 or older who perceive PBF products and live in the Bangkok metropolitan area. Firstly, a consumer sample residing in two areas was defined: the core area of Bangkok, encompassing 50 districts, and five adjacent provinces, consisting of 29 districts. Subsequently, all districts were selected through simple random sampling using a lottery method. In total, 20 districts within Bangkok were selected, namely Pathum Wan, Sathon, Phaya Thai, Ratchathewi, Huai Khwang, Chatuchak, Thon Buri, Din Daeng, Bang Kapi, Bang Khen, Phasi Charoen, Lat Phrao, Chom Thong, Bang Khae, Wang Thonglang, Min Buri, Don Mueang, Lat Krabang, Bang Khun Thian, and Bang Bon. Additionally, 10 districts from the five adjacent provinces were chosen: Nakhon Chai Si, Phutthamonthon, Mueang Nonthaburi, Bang Yai, Mueang Pathum Thani, Lam Luk Ka, Bang Phli, Phra Pradaeng, Mueang Samut Sakhon, and Krathum Baen.

We employed a convenience sampling method to choose individuals from each specified district for participation in an online survey. Before distributing the questionnaires, we initially contacted potential participants through popular messaging apps in Thailand, such as Facebook, Line, FB Messenger, and Instagram, to confirm their eligibility (18 years or older) and residency in the selected districts. Once their presence in the specified districts was confirmed, participants were politely asked about their awareness of PBF products and willingness to complete the questionnaires. Subsequently, the questionnaires were distributed to prospective participants through Google Forms, along with a specified approximate completion time.

The sample size was calculated using the G*Power package version 3.1.9.4 in the linear multiple-regression analysis group, with a small effect size ($f^2 = 0.02$), an error of 5 % ($\alpha = 0.05$), a total of seven independent variables (predictors), and a test power of 80 % [79]. Therefore, the sample size in this study was 395 people. To prevent mistakes from respondents' incomplete questionnaires, the researchers collected another 15 samples, totaling 410 people, which was considered an appropriate and sufficient sample size.

3.2. Data collection and instrumentation

This study collected data from 410 respondents through Google Forms questionnaires, which were distributed via social media user accounts. The online survey ran from August through September 2022. Eight incomplete respondents were eliminated at the deadline, leaving 402 respondents. The questionnaire used this time had two parts: Part 1 was a demographic profile and consumer behaviour of the respondents using 15 multiple-choice questions, and Part 2 was the perceived value (PV) questions adapted from Hsu et al. [80], social influence (SI) adapted from Wyker and Davison [81], consumer identity (CI) questions adapted from Hansen et al. [82], social media communication (SMC) questions adapted from Wang et al. [83], online brand trust (OBT) questions adapted from Alam and Yasin [84], and attitudes toward PBFs (AT), and online purchase intention of PBFs (OPI) adapted from Wyker and Davison [81]. Social-efficacy (SE) is adapted from Salleh and Noor [85]. Thirty questions in Part 2 employed a 5-point Likert scale from strongly disapproving (1) to strongly agreeing (5). **Supplementary 1** describes questions, variables, and symbols.

3.3. Common method variance test

Since we acquired 402 useable responses through a self-administered approach, measuring both independent and dependent variables simultaneously, there is a potential concern regarding common method bias (CMB) in our data [86]. Numerous publications explore common method variance using surveys as the data collection method, but only 5.4 % conducted a thorough examination. This corresponds to 13.7 % of studies with the potential for CMB [87]. To mitigate this issue, participants were assured of the anonymity and confidentiality of their responses. They were also informed that there were no definitive right or wrong answers for each item. In addition, we conducted Harman's single-factor test on the dataset. The single factor, extracted without rotation, explained only 37.1 % of the variance, falling below the recommended threshold of 50 %. This suggests that common method variance may not pose a significant challenge in our dataset [86].

3.4. Validity and reliability: confirmatory factor analysis

The scale's construct validity was assessed by conducting confirmatory factor analysis (CFA) on the constructs and measurements (PV, SI, CI, SMC, OBT, AT, and OPI) with maximum likelihood estimation to confirm the dimensionality of the measurement model using Jamovi 2.4.11 [88]. The results of the CFA indicated that the fit indices met the desired levels ($\chi^2 = 479.335$ (p < 0.001); df = 251; χ^2/df = 1.910; CFI = 0.963; TLI = 0.955; RMSEA = 0.048; SRMR = 0.046). To ensure the reliability of the measurement scales, confirmatory factor analysis (CFA) and reliability analysis were conducted.

The CFA results were used as a reference point for constructing validity tests and gaining a deeper understanding of the measurement model outcomes. Based on the CFA results, the study further examined convergent validity, discriminant validity, and the

Table 1
Descriptives and factor loadings.

	Construct	Factor Loadings	Z	p
Perceived Value (PV)				
PV1	Plant-based foods utilise high-quality ingredients.	0.705	15.2	0.000
PV2	Plant-based foods come with safe packaging, food labels indicating day, month, and year information, and clear expiration dates.	0.764	17.0	0.000
PV3	The price of plant-based foods is reasonable.	0.697	15.1	0.000
PV4	Plant-based foods contain nutrients that are beneficial for the human body.	0.837	19.4	0.000
Social Influence (SI)				
SI1	I purchase plant-based foods due to family guidance.	0.866	20.7	0.000
SI2	The information about plant-based foods from social media aided me in my purchases.	0.817	19.3	0.000
SI3	I am interested in buying plant-based foods because my friends claim they're healthy.	0.809	18.2	0.000
SI4	I want to buy plant-based foods because my family says they're beneficial.	0.748	16.8	0.000
Consumer Identity (CI)				
CI1	I consider myself a consumer who cares about the environment.	0.875	21.6	0.000
CI2	I view myself as a consumer who values the environment.	0.776	17.8	0.000
CI3	I take pride in purchasing items that benefit the environment.	0.874	21.5	0.000
CI4	I appreciate it when relatives and friends acknowledge my concern for the environment.	0.825	19.7	0.000
Social Media Communication (SMC)				
SMC1	If my friends on social media support it, I will purchase plant-based foods.	0.697	15.4	0.000
SMC2	After reading information on social media, I made the decision to buy plant-based foods.	0.847	20.4	0.000
SMC3	Social networking aids me in selecting plant-based foods more efficiently.	0.840	20.2	0.000
SMC4	I will purchase plant-based foods if the reviews on social media are reliable.	0.820	19.5	0.000
Online Brand Trust (OBT)				
OBT1	I am confident about plant-based foods if the brand sells them on online stores like Shopee and Lazada.	0.750	15.7	0.000
OBT2	I rely on the reviews on the website of the plant-based food brand.	0.756	15.9	0.000
OBT3	I have confidence in popular social media brand names for plant-based foods.	0.692	14.2	0.000
Attitude towards Plant-based Foods (AT)				
AT1	Plant-based foods are crucial to me.	0.717	15.4	0.000
AT2	I derive the necessary nutrients from plant-based foods.	0.824	18.7	0.000
AT3	Whenever I have the opportunity, I typically consume plant-based foods.	0.784	17.4	0.000
Online Purchase Intention (OPI)				
OPI1	I will purchase plant-based foods online, especially if the company utilises smart production technology.	0.798	18.2	0.000
OPI2	I plan to buy plant-based food online, provided that the seller promptly responds to inquiries through my contact channels.	0.784	17.7	0.000
OPI3	I intend to purchase plant-based foods online, especially if I become part of online groups on social media.	0.811	18.6	0.000
Moderator Variable				
Self-efficacy (SE)[a]				
SE1	I am knowledgeable enough about plant-based foods to purchase them.	0.808	17.4	0.000
SE2	I have sufficient time to contemplate these plant-based foods more thoroughly.	0.736	16.3	0.000
SE3	I hold the belief that plant-based food positively impacts health.	0.652	13.8	0.000
SE4	The price of this plant-based food depends on my decision.	0.769	16.1	0.000
SE5	I am capable of purchasing plant-based foods without assistance.	0.679	14.6	0.000

Note.
[a] Separate calculations from the main CFA.

reliability of all multi-items. All indicators loaded significantly on their respective proposed constructs at p < 0.001 (Table 1).

The composite construct reliability (factor loadings; standardised estimate) estimates ranged from 0.652 to 0.875 (Table 1), well above the recommended cut-off of 0.50 [89], indicating acceptable reliability. It examined the model's psychometric properties, including reliability, convergent validity, and discriminant validity.

Composite reliability (CR) can also assess building reliability. It examines general reliability more deeply. CR evaluates concepts of coherence, strength, and equality [90]. The calculated Cronbach's alpha values for all constructs were found to be higher than the threshold of 0.75 (Table 2), indicating good internal consistency. All latent values exceeded 0.70, the CR criterion. The scales are trustworthy and internally consistent (Table 2). All had AVEs above 0.50 [91]. If composite reliability is greater than 0.6, the construct may have strong convergent validity [91]. This shows the measuring items' reliability.

Convergent validity refers to the average variance extracted (AVE) in a particular measure that converges to represent the underlying construct. The AVE is the mean of the squared loadings of each indicator associated with a construct. AVEs greater than 0.50 indicate convergent validity [93]. In this study, all indicators for each construct had AVEs greater than 0.50, indicating reasonable convergent validity.

For evaluating discriminant validity, correlation values should not surpass 0.85 [90]. Additionally, the square root of the AVE along the diagonal line (refer to Table 2) should exceed the correlation coefficient (r) between a specific construct and others in the model, as depicted in the off-diagonal elements in the corresponding columns of Table 2. This implies that a construct exhibits stronger correlations with its indicators than with other constructs in the model, indicating adequate discriminant validity [94]. Furthermore, all maximum shared variance (MSV) values were lower than the AVE values (refer to Table 2), suggesting that all latent variables demonstrate discriminant validity [90].

Nomological validity assesses whether the correlations between constructs in measurement theory align with theoretical expectations, indicating that correlations should align positively or negatively as per the specified theory [95]. All variables in the study exhibited statistically significant positive associations (Table 2). The strong correlations found were between social influence and social media communication (r = 0.761), between consumer identity and social media communication (r = 0.740), between online purchase intention and perceived value (r = 0.708), and between attitude and social influence (r = 0.705). Notably, all observed correlations, as shown in Table 2, align with the hypothesised directions outlined in the study's hypotheses, confirming alignment with the theory. Therefore, it can be inferred that nomological validity is substantiated for all measures employed in this study.

The HTMT assesses the connectivity of constructs, as indicated by the deattenuated construct score. Discriminant validity is presented in Table 3, using criteria for similar (HTMT <0.90) and different (HTMT <0.85) constructs [96]. No issues with discriminant validity were observed in this study at threshold values below 0.9 (Table 3). Overall, the investigation affirmed that all values met the anticipated criteria, indicating the overall satisfactory reliability and validity of the construct.

4. Results

4.1. Demographic characteristics

Table 4 shows that most of the 402 Thai people in the sample were women (81.4 %), between 18 and 27 years old (77.6 %), from Generation Y and Z (born between 1997 and 2010) and made between 5001 and 10000 baht a month (ca. 134 to 268 euros). Some had bachelor's degrees (36.1 %), while most were single (86.4 %), and a majority lived in Bangkok (62.9 %), were students (65.7 %), and had between two and four family members (63.4 %).

4.2. Characteristics of consumer behaviour

According to Table 5, the majority of consumers were omnivorous, eating both meat and plants (89.3 %), followed by flexitarians, consuming mostly plants with some meat or fish (5.2 %), and vegans, who exclusively ate plants (2.7 %). Among plant-based food companies, Zero Meat (40.3 %), Meat Avatar (31.1 %), and Than Thai (24.1 %) emerged as the most popular PBF brands. Respondents primarily became aware of PBF products through online advertising media (60.0 %), followed by websites and social media (33.1 %), and friend recommendations (31.1 %). Of those familiar with plant-based diets, 53 % had consumed them, with the majority consuming them for 2–3 months at a time (16.2 %) and spending between 100 and 199 baht or 2.68–5.33 euros per occasion (21.4 %).

Table 2
Construct validity and discriminant validity. **Source:** Gaskin and Lim [92] Master Validity Tool, AMOS Plugin output.

	CR	AVE	MSV	SMC	PV	SI	CI	AT	OPI	OBT
SMC	0.879	0.645	0.579	**0.803**						
PV	0.839	0.567	0.501	0.456	**0.753**					
SI	0.885	0.658	0.579	0.761	0.343	**0.811**				
CI	0.904	0.703	0.548	0.740	0.431	0.636	**0.838**			
AT	0.819	0.603	0.497	0.618	0.258	0.705	0.646	**0.776**		
OPI	0.840	0.636	0.501	0.548	0.708	0.417	0.493	0.412	**0.798**	
OBT	0.777	0.538	0.453	0.516	0.568	0.407	0.340	0.290	0.673	**0.733**

Note: The correlation coefficient (r) appears below the diagonal line, the square of the correlation coefficient (r^2) is above it, and the square root of AVE lies along the diagonal line. MSV stands for maximum shared variance.

Table 3
Heterotrait-monotrait (HTMT) ratio of correlations.

	CI	SI	PV	OPI	AT	OBT
CI	–					
SI	0.637	–				
PV	0.458	0.357	–			
OPI	0.494	0.400	0.724	–		
AT	0.651	0.718	0.255	0.425	–	
OBT	0.349	0.402	0.604	0.681	0.301	–
SMC	0.755	0.782	0.472	0.538	0.635	0.510

Table 4
Demographic profile of respondents.

Demographics	Frequency	Percentage (%)
Gender and sexual identity		
1. Male	60	14.9
2. Female	327	81.4
3. LGBT+	15	3.7
Age group		
1. 18–27	312	77.6
2. 28-37	44	10.9
3. 38-47	24	6.0
4. 48-57	22	5.5
Personal income (net monthly: Baht)		
1. Less than 5000	82	20.4
2. 5001–10,000	131	32.6
3. 10,001–15,000	54	13.4
4. 15,001–20,000	44	10.9
5. 20,001–25,000	22	5.5
6. More than 25,000	69	17.2
Education level		
1. Less than bachelor's degree	114	28.4
2. Studying bachelor's degree	109	27.1
3. Bachelor's degree	145	36.1
4. Master's degree	33	8.2
5. Doctoral degree	1	0.2
Marital status		
1. Unmarried	347	86.4
2. Married	27	6.7
3. Widowed/Separated/Divorced	28	6.9
Province of residency		
1. Bangkok	253	62.9
2. Samut Prakan	25	6.2
3. Samut Sakhon	15	3.7
4. Nakhon Pathom	34	8.5
5. Nonthaburi	36	9.0
6. Pathum Thani	39	9.7
Occupation		
1. Student	264	65.7
2. Civil servant	11	2.7
3. Self-employed	28	7.0
4. Professional state enterprises	10	2.5
5. Professional private companies	73	18.2
6. Freelance	10	2.5
7. Others	6	1.5
Family household size		
1. 1 person	41	10.2
2. 2–4 persons	255	63.4
3. More than 5 persons	106	26.4

4.3. Model fit and structural model

The next stage of the analysis involved specifying the structural model, and the maximum likelihood (ML) procedure was utilised to test it. The current study employed structural equation modelling (SEM) to analyse the hypothesised relationships using Jamovi 2.4.11. All goodness-of-fit indices for the model indicated an acceptable model fit ($\chi^2 = 509.048$ [p < 0.001]; df = 258; χ^2/df = 1.973; GFI = 0.984; CFI = 0.959; RMSEA = 0.049; NFI = 0.921; SRMR = 0.048). The causal factors in the model could explain the variance of OPI by 72.8 %. The present study utilised this structural model to test hypotheses H1 to H9. The model was evaluated using

Table 5
Demographic and consumption characteristics of respondents.

| Demographics	Frequency	Percentage (%)
Dietary preference		
1. Lacto-ovo vegetarian	7	1.7
2. Vegan	11	2.7
3. Flexitarian	21	5.2
4. General consumer	359	89.3
5. Others	4	1.0
Brand awareness of plant-based food		
1. Zero Meat	162	40.3
2. Meat Avatar	125	31.1
3. Than Thai	97	24.1
4. Let's Plant Meat	93	23.1
5. More Meat	93	23.1
6. PlantEver	56	13.9
7. First Pride	51	12.7
8. Harvest Gourmet	42	10.4
9. Mantra	28	7.0
10. Others	13	3.2
Communication channels of plant-based food		
1. Online media advertising	241	60.0
2. Website and social media	133	33.1
3. Friends recommendation	127	31.6
4. Family recommendation	79	19.7
5. Personal selling at store recommendation	75	18.7
6. Offline media advertising	48	11.9
7. Others	11	2.7
Eating plant-based food experience		
1. Yes	213	53.0
2. No	189	47.0
Frequency of plant-based food consumption		
1. Everyday	13	3.2
2. 2–3 times per week	25	6.2
3. 4–6 times per week	10	2.5
4. 1 time per week	28	7.0
5. 2–3 times per month	32	8.0
6. 1 time per month	40	10.0
7. More than 1 time per month	65	16.2
Cost of plant-based food per transaction in baht		
1. Less than 100	55	13.7
2. 100 - 199	86	21.4
3. 200 - 299	36	9.0
4. More than 300	36	9.0
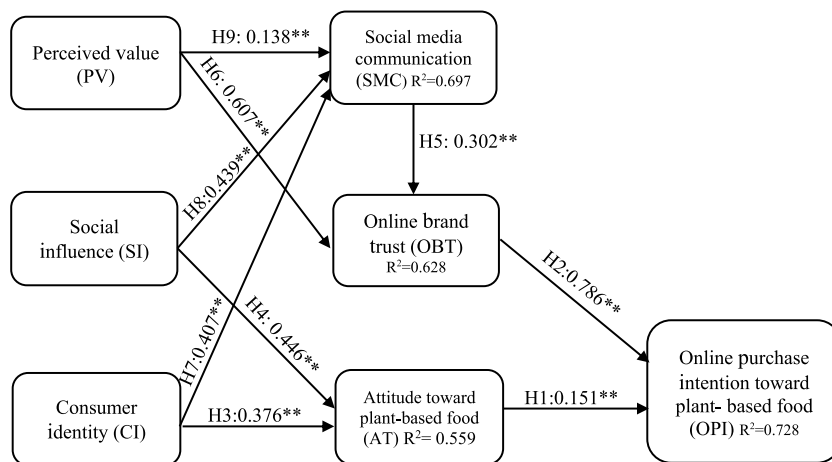
Fig. 2. Path results of the research model using pooled samples (n = 402). The R^2 values corresponding to the variables are displayed below them. These findings are derived from structural equation modelling analysis. **Note:** *p < 0.05, **p < 0.01.

standardised path coefficients and significance levels (t values).

Fig. 2 and Table 6 collectively support all hypotheses (H1–H9) regarding direct effects. The main findings reveal that AT (z = 2.951, p < 0.01) and OBT (z = 10.006, p < 0.01) positively influence OPI (H1 and H2), while CI (z = 5.858, p < 0.01) and SI (z = 6.642, p < 0.01) significantly impact a positive attitude (AT) towards PBFs (H3 and H4). Additionally, SMC (z = 5.034, p < 0.01) and PV (z = 8.472, p < 0.01) demonstrate positive effects on OBT (H5 and H6, respectively). Furthermore, CI (z = 7.283, p < 0.01), SI (z = 7.761, p < 0.01), and PV (z = 3.280, p < 0.01) also play a role in influencing SMC (H7, H8, and H9, respectively). Importantly, it was noted that OBT (β = 0.786) exhibits a stronger impact on OPI compared to AT (β = 0.151), and SI (β = 0.446) holds greater influence on a positive attitude (AT) towards PBFs than CI (β = 0.376). Moreover, PV (β = 0.607) demonstrates more influence on OBT compared to SMC (β = 0.302), while SI (β = 0.439) shows the most substantial effect on SMC, followed by CI (β = 0.407) and PV (β = 0.138), respectively.

4.4. Tests of moderating effects

As presented in Table 7 and Fig. 3, hypotheses (H11-1 through H11-9) investigated various factors affecting OPI and related aspects in this study. The key findings are as follows:

H11-1 highlighted the significant impact of AT (Z = 3.800, p < 0.001), SE (Z = 6.870, p < 0.001), and their interaction (Z = 2.770, p = 0.006) on OPI. When analysing SE groups (low, average, and high), AT showed a notable effect on OPI in the average (Z = 3.77, p < 0.001) and high SE groups (Z = 4.47, p < 0.001), but not in the low SE group (Z = 1.13, p = 0.258).

H11-2 revealed substantial impacts of OBT (Z = 18.010, p < 0.001) and SE (Z = 4.060, p < 0.001), with their interaction (Z = 2.360, p = 0.018), on OPI. OBT significantly influenced OPI within all SE groups (Z = 17.900, 15.900, and 13.700, respectively; p < 0.001).

Subsequent hypotheses (H11-3 through H11-9) consistently supported the significant effects of various factors across different SE groups, aligning with anticipated relationships.

These findings underscore the varying impacts of these factors on OPI concerning different levels of SE.

5. Discussion

5.1. Demographic characteristics

The demographic characteristics of the 402 sampled Thai individuals provide crucial insights into the contextual background for this study. The dominant representation of women, individuals aged 18 to 27, primarily from Generations Z (11–23 years) and Y (24–39 years), mainly residing in Bangkok and predominantly students, sheds light on the specific segment that could potentially influence the consumption patterns of plant-based foods and online purchase intentions. Notably, their moderate-income levels, educational background, generational age group, and familial status (Table 4) might interplay with their receptiveness and accessibility to novel dietary options and online consumption habits.

The research findings align with significant trends observed in different regions. For instance, Bryant et al. [97] underscored a notable preference among women, compared to men, for purchasing clean plant-based meat in China. Alae-Carew et al. [98] revealed that in the UK, women, millennials (Generation Y, aged 24–39), and individuals with higher incomes demonstrate significantly higher consumption rates of plant-based alternative foods.

5.2. Characteristics of consumer behaviour

Examining consumer behaviour, the prevalence of omnivorous consumers stands out, dominating the sample, while the presence of flexitarian and vegan consumers suggests a growing trend towards plant-based diets (Table 5). The popularity of specific PBF companies further underlines the emerging market landscape in Thailand. Notably, the sources of awareness regarding PBF products,

Table 6
Structural parameter estimates: direct effects.

Path coefficient	Estimate	SE	95 % Confidence Intervals		β	z	Hypothesis testing results
			Lower	Upper			
H1: AT ⇒ OPI	0.107	0.036	−0.036	0.179	0.151[a]	2.951	Supported
H2: OBT ⇒ OPI	0.969	0.097	0.779	1.159	0.786[a]	10.006	Supported
H3: CI ⇒ AT	0.429	0.073	0.286	0.573	0.376[a]	5.858	Supported
H4: SI ⇒ AT	0.502	0.076	0.354	0.650	0.446[a]	6.642	Supported
H5: SMC ⇒ OBT	0.220	0.044	0.134	0.350	0.302[a]	5.034	Supported
H6: PV ⇒ OBT	0.573	0.068	0.440	0.705	0.607[a]	8.472	Supported
H7: CI ⇒ SMC	0.369	0.051	0.270	0.468	0.407[a]	7.283	Supported
H8: SI ⇒ SMC	0.392	0.050	0.293	0.491	0.439[a]	7.761	Supported
H9: PV ⇒ SMC	0.179	0.055	0.072	0.286	0.138[a]	3.280	Supported

Note.
[a] p < 0.01.

Table 7
Moderating effects of SE.

			Estimate	SE	Z	p
H11-1	Moderation	AT	0.143	0.0377	3.800	<0.001
	[AT-OPI]	SE	0.321	0.0467	6.870	<0.001
		AT x SE	0.122	0.0438	2.770	0.006
	Simple Slope Analysis	Average	0.143	0.0379	3.770	<0.001
		Low (-1SD)	0.053	0.0476	1.130	0.258
		High (+1SD)	0.232	0.0519	4.470	<0.001
H11-2	Moderation	OBT	0.696	0.0387	18.010	<0.001
	[OBT-OPI]	SE	0.147	0.0363	4.060	<0.001
		OBT x SE	0.092	0.0391	2.360	0.018
	Simple Slope Analysis	Average	0.696	0.0388	17.900	<0.001
		Low (-1SD)	0.629	0.0395	15.900	<0.001
		High (+1SD)	0.764	0.0558	13.700	<0.001
H11-3	Moderation	CI	0.329	0.0410	8.030	<0.001
	[CI-AT]	SE	0.530	0.0471	11.270	<0.001
		CI x SE	0.053	0.0452	1.180	0.237
	Simple Slope Analysis	Average	0.330	0.0411	8.020	<0.001
		Low (-1SD)	0.290	0.0455	6.390	<0.001
		High (+1SD)	0.369	0.0593	6.220	<0.001
H11-4	Moderation	SI	0.410	0.0377	10.880	<0.001
	[SI-AT]	SE	0.484	0.0451	10.750	<0.001
		SI x SE	0.046	0.0410	1.130	0.257
	Simple Slope Analysis	Average	0.411	0.0378	10.860	<0.001
		Low (-1SD)	0.376	0.0445	8.470	<0.001
		High (+1SD)	0.445	0.0518	8.580	<0.001
H11-5	Moderation	SMC	0.447	0.0415	10.795	<0.001
	[SMC-OBT]	SE	0.086	0.0424	2.041	0.041
		SMC x SE	0.034	0.0408	0.850	0.396
	Simple Slope Analysis	Average	0.448	0.0415	10.790	<0.001
		Low (-1SD)	0.422	0.0428	9.860	<0.001
		High (+1SD)	0.473	0.0583	8.120	<0.001
H11-6	Moderation	PV	0.542	0.0514	10.550	<0.001
	[PV-OBT]	SE	0.155	0.0394	3.940	<0.001
		PV x SE	−0.097	0.0497	−1.970	0.049
	Simple Slope Analysis	Average	0.542	0.0515	10.520	<0.001
		Low (-1SD)	0.614	0.0455	13.480	<0.001
		High (+1SD)	0.471	0.0769	6.120	<0.001
H11-7	Moderation	CI	0.416	0.0322	12.920	<0.001
	[CI-SMC]	SE	0.353	0.0370	9.580	<0.001
		CI x SE	−0.057	0.0355	−1.620	0.105
	Simple Slope Analysis	Average	0.416	0.0323	12.890	<0.001
		Low (-1SD)	0.459	0.0357	12.830	<0.001
		High (+1SD)	0.374	0.0466	8.030	<0.001
H11-8v	Moderation	SI	0.440	0.0300	14.660	<0.001
	[SI-SMC]	SE	0.341	0.0359	9.510	<0.001
		SI x SE	−0.076	0.0326	−2.360	0.018
	Simple Slope Analysis	Average	0.440	0.0302	14.590	<0.001
		Low (-1SD)	0.497	0.0355	13.980	<0.001
		High (+1SD)	0.384	0.0414	9.280	<0.001
H11-9	Moderation	PV	0.176	0.0541	3.260	0.001
	[PV-SMC]	SE	0.596	0.0415	14.360	<0.001
		PV x SE	−0.027	0.0524	−0.525	0.600
	Simple Slope Analysis	Average	0.176	0.0541	3.260	0.001
		Low (-1SD)	0.197	0.0478	4.120	<0.001
		High (+1SD)	0.156	0.0808	1.930	0.053

predominantly through online advertising media and social media, signify the increasing influence of digital marketing platforms in shaping dietary choices. However, the percentage of individuals who knew about plant-based diets and actually consumed them infrequently suggests a gap between awareness and adoption, potentially influenced by factors like cost and frequency of consumption.

The recent findings of Chongfusuwan [99] revealed that Thai consumers showed positive attitudes towards initial PBF trials due to factors such as reasonable pricing, product benefits, nutritional value, and accessibility. In the repurchase group, positive attitudes were primarily influenced by product benefits and nutritional value. Conversely, the non-repurchase group emphasised the significance of reasonable pricing for initial trials but considered it inadequate for continued consumption.

5.3. Direct effects

The study constructed a structural equation model (SEM) using the maximum likelihood (ML) procedure, revealing a well-fitted
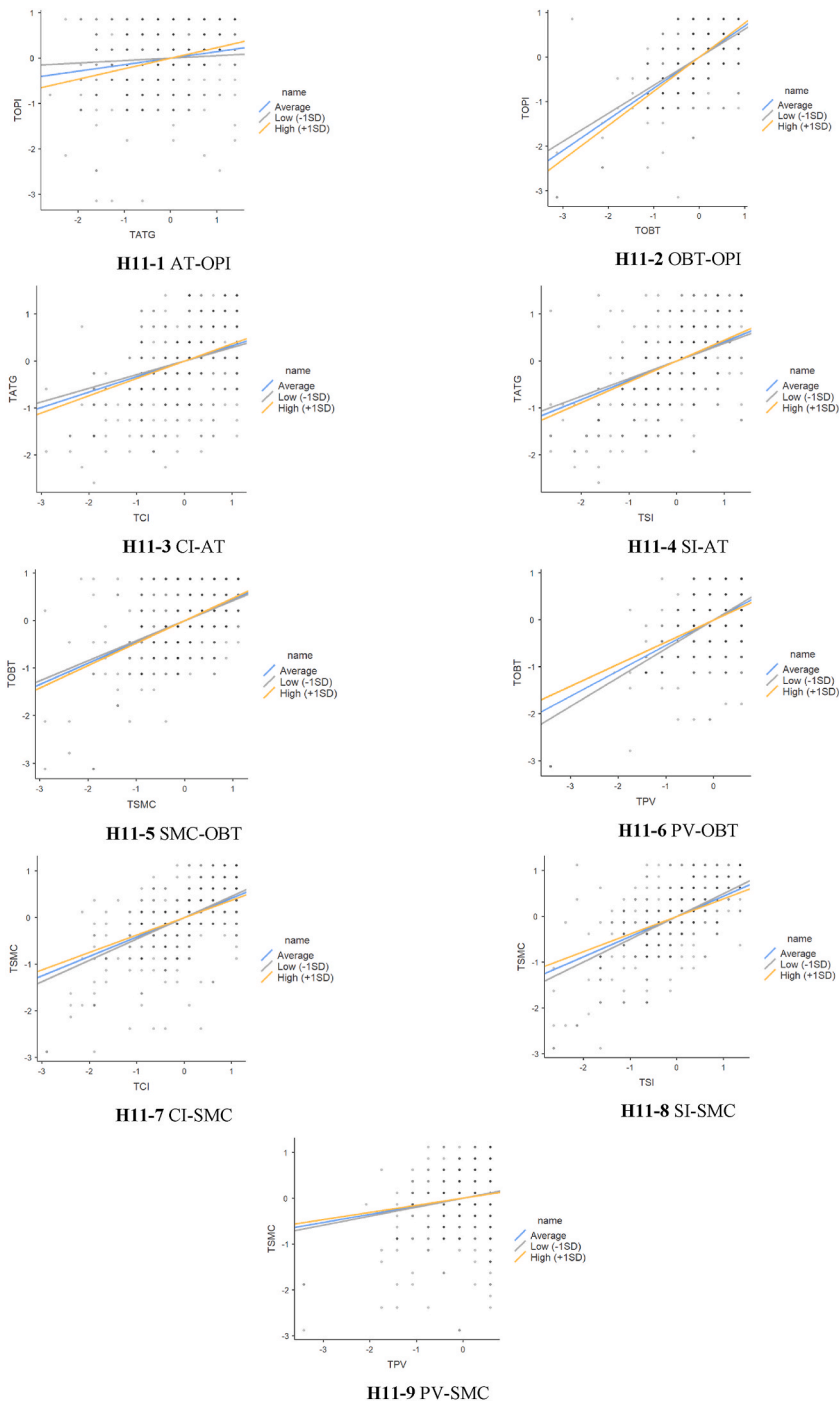
Fig. 3. Simple slope plot of the moderating variable for SE (H11-1 to 11-9).

model based on various goodness-of-fit indices. The structural model explained 72.8 % of the variance in online purchase intention (OPI). The tested hypotheses (H1 to H9), shown in Fig. 2 and Table 6, revealed significant direct effects, emphasising the substantial impact of attitude (AT) and online brand trust (OBT) on OPI. Notably, online brand trust exhibited the most substantial influence on online purchase intention, followed by attitude.

Attitude (AT) holds substantial influence over online purchase intentions (OPI) (H1), aligning with prior research, highlighting the critical roles of these elements in online purchases of PBFs. For instance, Tan et al. [100] discovered that attitude positively influenced organic food purchase intention, identifying attitude as the most significant predictor. Similarly, Le and Nguyen [101] highlighted attitude as a significant mediator, indicating its role in the impact of environmental awareness and knowledge of organic food on

purchase intention. Hansen et al. [102] also demonstrated a positive association between attitude and food purchase intentions, specifically focusing on millennial customers' intention to purchase organic foods. Furthermore, the study confirms the notable impact of brand trust on online purchase intentions (H2), echoing research that underscores its role in shaping customer loyalty and purchasing behaviours [103]. Trust plays a significant role in influencing purchase behaviour by nurturing valuable transactional relationships [104]. Yin et al. [105] identified brand trust as a significant driver of Chinese consumers' intentions to buy organic food, highlighting its relevance in the realm of PBF purchases. Büyükdağ [106] further emphasised the positive impact of brand trust and other factors on purchase intentions for social media brands.

The results highlighted the significant impacts of consumer identity (CI) and social influence (SI) in cultivating positive attitudes towards PBFs (AT) (H3 and H4, respectively). These findings align with previous studies that have demonstrated the influence of consumer identity and social influence in shaping attitudes towards specific products or dietary preferences [107]. Both consumer identity and social influence play substantial roles in fostering positive attitudes towards PBFs. Consumer identity, which pertains to an individual's self-perception as a consumer [108], notably shapes attitudes regarding PBFs by moulding beliefs, values, and preferences related to dietary choices. Strong identification with concepts such as healthy eating or environmental consciousness, for example, can drive positive attitudes towards plant-based diets [109]. Similarly, social influence, encompassing the impact of peer groups, social circles, or influencers [110], significantly influences attitudes towards PBFs. Positive endorsements from peers or influential figures advocating the benefits of plant-based diets often sway individuals' attitudes, reinforcing the perception that consuming PBFs is a desirable and socially accepted behaviour [111]. Collectively, consumer identity and social influence synergistically contribute to fostering favourable attitudes towards PBFs, influencing consumer choices and purchase decisions in favour of these dietary options.

The study's findings underscore the roles of social media communication (SMC) and perceived value (PV) in reinforcing online brand trust (OBT) (H5 and H6, respectively). Previous studies have shown that perceived value has a significant effect on brand trust [112]. Loureiro [113] demonstrated that online perceived benefits impact positively on customers' trust, and online perceived risks tend to be lower when trust increases. Our findings also corroborate the pivotal role of social media in brand communication strategies, particularly in fostering brand engagement and trust [114]. Dessart [114] revealed that high social media engagement increases brand relationships significantly, particularly affecting brand trust, commitment, and loyalty. Social media acts as a platform that facilitates direct interaction between brands and consumers [115], allowing brands to convey information about their products, values, and practices. Utilising social media platforms for communication has the potential to contribute to building, engaging with consumers, and cultivating relationships, ultimately impacting their perception of a brand's credibility and reliability. Perceived value, on the other hand, encompasses the benefits consumers believe they receive from a product compared to its cost. In the context of PBFs, perceived value might include factors like health benefits, environmental impact, taste, and affordability. When consumers perceive a high value in a particular type of food (including PBFs), it reinforces their trust in the brand's offerings [116], strengthening their belief that the products will meet their expectations and needs. Ultimately, the combination of effective social media communication and a perceived high value of the products cultivates and bolsters online brand trust for PBF products.

Consumer identity (CI), social influence (SI), and perceived value (PV) collectively wield a significant impact on shaping social media communication (SMC) within the realm of consumer behaviour (H7, H8, and H9, respectively). Consumer identity, reflecting an individual's self-concept formed through their association with specific brands or products [117], significantly affects their communication behaviour on social media platforms [118]. Schivinski and Dąbrowski [118] found that social media brand communication has a noticeable impact on brand associations and awareness, which in turn influences brand loyalty and perceived quality. A study by Bruhn et al. [119] also found the strong influence of social media communications on brand image, further supporting the impact of brand association on consumer behaviour on social media platforms. Moreover, social influence, which encompasses the impact of reference groups and societal norms on individuals, plays a crucial role in shaping the content and manner of communication about products or brands within social networks [120]. Kamboj et al. [121] discussed the paradigm of stimulus-organism-response in brand communities on social media, indicating the influence of fellow members on information acquisition and communication behaviour within social networks. Additionally, perceived value, representing the perceived benefits versus costs associated with a product, strongly influences the extent and nature of communication individuals engage in on social media regarding their experiences and opinions about specific products or brands [122]. Together, these factors intricately interplay in shaping social media communication patterns, thereby impacting consumer behaviours and attitudes towards products or brands.

5.4. Moderating effects

The results obtained from hypotheses H11-1 through H11-9 underscore the intricate interplay between various factors and their effects on online purchase intention (OPI), moderated by self-efficacy (SE), as evidenced in Table 7 and Fig. 3. Firstly, as hypothesised in H11-1, both attitude (AT) and SE, along with their interaction, significantly influenced OPI. The subsequent investigation, utilising a categorisation of SE into low, average, and high groups, revealed a notable pattern: while AT exhibited a substantial impact on OPI within the average and high SE groups, its effect was negligible in the low SE group. Similarly, hypothesis H11-2 revealed the significant impacts of online brand trust (OBT) on OPI across all SE categories. Moreover, H11-3 through H11-9 consistently supported significant effects of various factors across distinct SE groups. These findings suggest that SE plays a crucial role in moderating the relationships between predictor variables (such as AT, CI, OBT, SI, SMC, and PV) and OPI. The influence of SE on these associations underscores the importance of considering individual self-efficacy levels in understanding and predicting online purchase behaviours concerning PBF products.

The moderating effects of self-efficacy on online purchase intention regarding PBF products offer a unique lens into the intersection of individual confidence and the emerging market for plant-based alternatives [123]. Ben-Ami et al. [124] investigated consumer

behaviour when encountering new products or behaviours perceived as difficult to adopt (DTA) due to low self-efficacy. The researchers found consumers with low self-efficacy are less motivated to try DTA products, even if those products could benefit them, and marketing messages that boost specific self-efficacy can increase consumer motivation and intention towards DTA products. Therefore, high self-efficacy levels may positively impact consumers' confidence in navigating online platforms, exploring information about plant-based options, and completing transactions for these products. Conversely, lower levels of self-efficacy might introduce hesitancy or doubts, potentially influencing the willingness to engage in online purchase behaviours specific to PBFs. Understanding the moderating effects of self-efficacy on online purchase intention towards PBF products is crucial in deciphering the nuances of consumer preferences, decision-making processes, and the adoption of sustainable and eco-conscious food choices in the digital retail landscape.

6. Conclusions

This research delved into the complexities of online purchase intention within the context of PBFs, employing the SOR theory framework in a sample of 402 Thai individuals. The structural equation modelling (SEM) analysis portrayed a well-fitted model, elucidating that the causal factors in the model explained 72.8 % of the variance in online purchase intention. Notably, the study validated all nine hypotheses, highlighting the significant direct effects of consumer identity, online brand trust, social influence, and perceived value on online purchase intention for PBF products. Online brand trust emerged as the most influential factor, followed by consumer identity and social influence. Furthermore, the study elucidated the moderating effects of self-efficacy on online purchase intention, demonstrating its crucial role in influencing the relationships between various predictor variables and purchase intentions.

7. Theoretical and practical implications

In the case of PBFs, using the SOR theory has both theoretical and practical implications, as shown by the data. Theoretical implications stem from employing structural equation modelling (SEM) to elucidate pivotal factors influencing online purchase intention regarding PBFs. This approach substantiates the significance of consumer identity, online brand trust, social influence, and perceived value in shaping consumer behaviours, contributing by quantifying and confirming these relationships within the context of plant-based diets. Furthermore, the study highlighted the intricate connections while emphasising the moderating role of self-efficacy and showcasing the importance of individual confidence in shaping online purchase behaviours related to PBFs.

Practically, these findings offer actionable insights. Firstly, insights into consumer demographics facilitate tailored marketing strategies, leveraging preferred communication channels such as online advertising, social media, and peer recommendations to promote PBF products. Tailored messaging focusing on health benefits, affordability, and environmental sustainability can resonate effectively with different consumer segments. Secondly, it is of paramount importance to build online brand trust through transparent communication aligned with consumer identity and the perceived value of PBFs. Utilising social media platforms for engaging content and addressing consumer concerns becomes essential to fostering trust. Thirdly, recognising diverse dietary preferences suggests diversifying product lines to cater to omnivorous, flexitarian, and vegan segments, focusing on taste, nutrition, and convenience. Moreover, understanding the impact of consumer identity, social influence, and perceived value on social media communication directs companies to tailor messaging, fostering positive attitudes and influencing purchasing decisions. Lastly, considering the role of self-efficacy in moderating purchase intentions emphasizes the necessity of user-friendly interfaces, informative content, and supportive customer service, particularly catering to consumers with lower self-efficacy levels, to create a reassuring online experience.

8. Limitations and future research directions

The study has limitations and suggests various future research directions. Firstly, due to the skewed demographic of young, female Generation Z and Y Thai individuals from Bangkok, the findings may not apply broadly. Over half of the respondents are young women, possibly reflecting the fact that a significant majority fall within the age range of 18–34 years. This demographic represents the largest group of social media users on platforms like Facebook, Line, FB messenger, and Instagram in Thailand, as reported in January 2023 by OOSGA [125]. Limited resources led to a small online participant pool, reducing the findings' generalisability. Future studies should aim for diverse participants for better validity. Secondly, using self-reported data and a cross-sectional design may introduce bias and hinder understanding of long-term behaviour. Longitudinal or mixed-method approaches are recommended. The study might have missed other factors within the SOR framework, urging further investigation. Lastly, exploring the long-term impacts of plant-based diets on health, environment, and sustainability is crucial for societal and ecological implications, demanding further research.

Funding

Data availability statement

Data will be made available upon request and can be accessed by contacting the corresponding author.

Compliance with ethical standards

For our survey, we have obtained ethical approval from the Mahidol University Central Institutional Review Board (Protocol Number: MU-CIRB 2022/188.1107). All research was performed in full accordance with International Guidelines for Human Research Protection, such as the Declaration of Helsinki, The Belmont Report, the CIOMS Guidelines, and the International Conference on Harmonisation in Good Clinical Practice (ICH-GCP).

CRediT authorship contribution statement

Teerapong Teangsompong: Writing – review & editing, Writing – original draft, Visualization, Validation, Software, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Weerachon Sawangproh:** Writing – review & editing, Writing – original draft, Visualization, Validation, Software, Resources, Methodology, Investigation, Formal analysis, Conceptualization.

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.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.heliyon.2024.e30785.

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