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ANTECEDENTS OF ORGANIC FOOD PURCHASING BEHAVIOUR: A Multi-Method Approach of Generation Y Consumers in South Africa

COSTA SYNODINOS
NORTH-WEST UNIVERSITY

GUSTAVO HERMÍNIO SALATI MARCONDES DE MORAES
UNIVERSIDADE ESTADUAL DE CAMPINAS (UNICAMP)

NÁGELA BIANCA DO PRADO
UNIVERSIDADE ESTADUAL DE CAMPINAS (UNICAMP)

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1. INTRODUCTION

The rapid growth of the economy and the rapid development of industry increased consumption worldwide and then increased environmental degradation (Ayyub et al., 2018). For the better part of the 19th century, consumers were exposed to various harmful toxins in food production (Jackson, 2009). The use of chemicals on food products was a common practice amongst farmers in the early 1900s; it was only with the advancement in technology that harmful toxins were replaced with safer alternatives (Tudi et al., 2021).

The expansion of the global human population has put a heavy strain on the demand for food products. To match this demand farmers had to add chemicals, pesticides, and preservatives which increased crop yield tremendously. The purpose of these chemicals would prevent crop destruction from pests and increase the shelf life of perishable foods. However, these chemically induced prevention methods were found to be harmful and, in some cases, even deadly to humans (Tudi et al., 2021; Dasic et al, 2021; Padmaja & Parashar, 2018; Mahmood et al., 2016).

Mahmood et al. (2016) explain that pesticides harm those that consume them and damage the natural environment by contaminating natural water sources, contributing to soil erosion, and harming fauna and flora. In today's day and age, consumers are constantly inundated with information concerning environmental issues, leading to a direct surge of personal consumer health concerns. Furthermore, heightened environmental concern and self-health care have altered the purchasing behaviour of food products for consumers seeking to increase life longevity. As such, organic food products have recently gained prominence because they have been linked with a healthier lifestyle due to the nature of their production methods (Melovic et al., 2020; Magnusson et al., 2001).

Organic foods are notably making their mark in the food industry and there has been a significant increase in demand for these products on a worldwide scale (Bhalla, 2020). For a food product to be considered 'organic' that product must meet a certain set of criteria in its production process. An organic food product must be produced without any chemically induced growth hormones or harmful pesticides for the entirety of the production process. The organic production process includes all aspects from growth, packaging, and distribution done in an environmentally conscious manner (Dasic et al., 2019; Sing & Verma, 2017). In addition, organic food products do not only account for the final product such as milk and eggs, but they also encompass the well-being and living conditions of the animal providing the produce.

There are many definitions for organic food products. Still, most have a recurring theme, those being (1) organic food products must be produced without any chemicals or preservatives and (2) the production process thereof must be completed in a sustainable or environmentally friendly manner. Padmaja and Parashar (2018) believe organic food products to be food items produced with minimal processing to maintain the food's original integrity. Furthermore, these products are produced without preservatives, irradiation, or artificial ingredients.

In a complementary way, various authors explain that an organic food product must also be produced using environmentally friendly cultivation techniques throughout the production process (Sing & Verma, 2017; Watson, 2017; Paul & Rana, 2012). This definition holds especially for farmers in the South African organic food market. Despite being in its infancy, South African farmers have adopted harmonious agricultural methods, which include producing crops and livestock water-consciously and using natural pesticides (South African Online, 2021).

Additionally, during the Covid-19 pandemic, consumer behaviour has started to change as more attention is being paid to food intake (Suki et al., 2021) and an increase in healthier foods is being driven (Arora et al., 2021). Therefore, understanding the purchase behaviour of consumers of organics in this context is important and justifiable for the realization of this study. Another factor that drives this study is based on the fact that many of the recent studies on organic foods have focused on developed countries (Suki et al., 2021) ignoring the interest of developing countries in the sustainability trend (Dekhili & Nguyen, 2021).

According to Dekhili and Nguyen (2021), developing countries generally have typical characteristics of a low standard of living, high population growth rate, and largely rural population but rapid rural-urban migration. Considering Wojciechowska-Solis and Barska (2021), it should be noted that economic growth, social progress, and the environmental order are considered interdependent phenomena, which implies the need to solve problems on the way to sustainable development jointly. Therefore, food consumption is a central element of sustainable policy for the production and consumption of consumer goods and directly impacts public health, the environment, and economic development.

To fully understand the up-trending organic food market, it is vital to understand consumer perceptions because they are pivotal in the decision-making process (Ghorai et al., 2021; Du Toit, 2014). More importantly, understanding the purchase intentions of the Generation Y cohort, who are society's future consumers, is paramount to the success of organic food products in a developing country (Gruzina, et al., 2020). In this way, we aim to analyze the antecedents of organic food purchasing behaviour amongst Generation Y consumers in South Africa. More specifically, we investigated the influence of attitude towards organic food, subjective norms, perceived behaviour control, environmental knowledge, health awareness, and organic food knowledge on purchase intention of organic food and consequently on organic food purchase behaviour. Additionally, we investigated the influence of subjective norms on environmental knowledge and health consciousness.

To reach our article objective, we used a multi-method approach, combining symmetric techniques with Partial Least Squares Structural Equation Modelling (PLS-SEM) and asymmetric techniques with Fuzzy-set Qualitative Comparative Analysis (fsQCA). The primary data sample was collected by a specialist company and included 500 Generation Y consumers from South Africa. Hypothesis and data analysis were based on The Theory of Planned Behaviour (TPB), which has provided researchers the flexibility to capture a range of factors that affect consumer behaviour concerning a given subject (Matharu et al., 2021). In the literature, TPB has been widely used to predict consumer intention and behaviour in a wide range of green and pro-environmental areas, including the prediction of organic food purchase intention.

This article includes, in addition to this introduction, a literature review about the TPB and its relation to organic food product consumption; the methodology adopted in the study in section three; the results in four; the discussions in five; the conclusions and contributions, in section six, followed by the references used throughout the development of the study.

2. LITERATURE REVIEW

2.1.Theory of planned behaviour and its relation with organic products' consumption

The TPB is an extension of the Theory of Rational Action (TRA). Both have as a central factor the individual's intention to perform a specific behaviour and incorporate some of the significant concepts of the social and behavioural sciences to predict and understand particular behaviours in specific contexts (Ajzen, 1991). The intention indicates how hard an individual is willing to try, strive and plan to perform a specific behaviour and is assumed to capture the

motivational factors that influence behaviour. Thus, TPB considers, as a general rule, that the more the intention is to engage in a behaviour, the more likely its performance should be (Ajzen, 1991; Matharu et al., 2021).

The theory distinguishes between three types of beliefs – behavioural, normative, and control – and between the related constructs of attitude, subjective norm, and perceived behavioural control (Ajzen, 1991). In other words, attitudes toward behaviour, subjective norms, and perceived behaviour control generally predict behavioural intentions with high accuracy. In turn, combined with perceived behavioural control, these intentions may account for a considerable proportion of variation in behaviour (Ajzen, 1991).

TPB model has been applied in different contexts, such as green hotels and restaurants (Fielding et al., 2008; Yadav & Pathak, 2016), green products (Kim & Choi, 2005), consumption of organic coffee (K. H. Lee et al., 2015), organic milk (Carfora et al., 2019), organic textile decoration (Gam et al., 2020) and green furniture (Xu et al., 2020).

Consequently, the TPB has been a practical framework for predicting purchase intentions for organic foods in various contexts (Akbar et al., 2019; Al-Swidi et al., 2014; de Toni et al., 2018; Nguyen et al., 2019; Tandon et al., 2020; Tarkiainen & Sundqvist, 2005; Yazdanpanah & Forouzani, 2015; Zayed et al., 2022). The theory denotes that the individual's behaviour can be favourable or unfavourable to the performance of such behaviour (Matharu et al., 2021).

According to TPB, organic food purchase performance is a joint function of intentions and perceived behavioural control (Tarkiainen & Sundqvist, 2005). The first condition for a behavioural prediction concerns the individual's attitudes towards purchasing organic food. Attitude toward behaviour refers to the degree to which a person has a favourable or unfavourable assessment of the behaviour in question (Ajzen, 1991). Thus, the more favourable the attitude towards an individual's behaviour, the greater the likelihood that the individual will perform a particular behaviour.

Therefore, an individual tends to have a favourable attitude when they positively evaluate the use and are likely to engage in this specific behaviour (Cavite et al., 2022; K. H. Lee et al., 2015; Yadav & Pathak, 2016). Consumer attitudes have been used in studies to predict energy conservation and the ecologically conscious purchase and use of products, as well as leading consumers, to publicly show environmental concern by signing ecologically relevant petitions and supporting or joining an anti-pollution organization (Mostafa, 2007).

In the case of buying organic food, Tandon et al. (2020) state that attitudes are one of the strongest precursors of purchase intentions and can strongly affect actual consumption or purchase behaviour towards organic foods. For example, Nguyen et al.(2019) found that attitude is a significant predictor of purchasing organic food in Vietnam. Therefore, a positive attitude towards the purchase of organic food is a good opening for the motivation to consume this class of products (Matharu et al., 2021) and, with this, the first research hypothesis emerges:

H1: Attitude towards organic foods positively influences the organic food purchase intention.

The second predictor that influences the purchase of organic foods, through the TPB, is a social factor called subjective norms. For Ajzen (1991), subjective norms refer to perceived social pressures to perform or not a particular behaviour. In other words, the subjective norm is the notion that each individual relates to other people in society and, because they have similar qualities, can influence each other in their social dynamics (Cavite et al., 2022; Fielding et al., 2008; Matharu et al., 2021). Thus, subjective norms shape consumer behaviour based on elements agreed in community customs or traditional views (Cahyasita et al., 2021).

As an example, in the study by Lee et al. (2015), the evidence points out that if consumers believe that the people important to them consider organic coffee to be healthier, fresher, more reliable, and produced by ecologically correct means, they will have a greater intention to buy organic coffee. In the research by Yadav and Pathak (2016), the result suggested that the subjective norm can predict the intention of young consumers to buy green products.

For Matharu et al. (2021), the subjective norm is essential in influencing the consumer's intention to purchase organic foods. Subjective norms refer to the perception that others would approve of the decision to consume organic food or not (Teixeira et al., 2021). With this, the second research hypothesis (H2) is presented:

H2: Subjective norms positively influence the organic food purchase intention.

The third antecedent of purchase intention for organic foods is the degree of perceived behavioural control. According to Ajzen (1991), perceived behavioural control refers to the perceived ease, or difficulty, of performing the behaviour. Such control is assumed to reflect the experience and anticipated impediments and obstacles.

Prediction of behaviour from perceived behavioural control should improve as perceptions of behavioural control realistically reflect actual control. Adding perceived behavioural control should become increasingly helpful as voluntary control over behaviour diminishes. Both intentions and perceptions of behavioural control can significantly contribute to predicting behaviour (Ajzen, 1991).

As a result, those with greater control over themselves have a stronger intention to perform a particular behaviour (Kim & Choi, 2005; Yadav & Pathak, 2016). In the interpretation of Cavite et al. (2022), perceived behavioural control is the individual's perception of the difficulty or ease of performing a behaviour. In the context of organic food purchases, perceived behavioural control, still through Cavite et al. (2022), positively influences their intention to buy organic products. Therefore, the third hypothesis (H3) of this study is addressed:

H3: Perceived behaviour control positively influences the organic food purchase intention.

2.2. Incorporating additional constructs in the TPB

In addition to attitude, subjective norms, and perceived behavioural control, scholars have added other variables as influential in the Purchase Intention of organic foods, such as personality traits (Chen, 2007), environmental awareness (de Toni et al., 2018; Kim & Choi, 2005; K. Lee, 2008; López-Galán et al., 2013; Pang et al., 2021; Singh & Verma, 2017), food security (Khayyam et al., 2021), environmental knowledge (Dursun et al., 2019; Mostafa, 2007; Paul & Rana, 2012; Rahamat et al., 2022; Tarkiainen & Sundqvist, 2005; Teixeira et al., 2021; Wu et al., 2022), health awareness (Cavite et al., 2022; Iqbal et al., 2021; Kumar et al., 2022; Paul & Rana, 2012; Rahamat et al., 2022; Tarkiainen & Sundqvist, 2005; Teixeira et al., 2021) and knowledge of organic food (Ayyub et al., 2018; Chen, 2007; Iqbal et al., 2021; Kumar et al., 2022; Singh & Verma, 2017; Zayed et al., 2022).

Environmental knowledge concerns a general knowledge of facts, concepts, and relationships between the natural environment and its main ecosystems. It involves what people know about the environment, the central relationships that lead to environmental aspects or impacts, and the collective responsibilities necessary for sustainable development (Mostafa, 2007).

For Dursun et al. (2019), environmental knowledge is the dominant determinant of environmental behaviour or intention. In this same sense, Yadav and Pathak (2016) agree that knowledge about environmental issues results in pro-environmental and ecologically correct behaviour and influences purchasing intention. The research by Wu et al. (2022), for example, carried out a cross-sectional survey of 434 university students in China and identified that environmental knowledge was one of the essential predictors of waste management behaviour.

Because of this, we assume that environmental knowledge positively influences the purchase intention of organic foods, as the consumer knows the benefits of such foods for ecosystem health. Thus, the fourth hypothesis (H4) of this study is identified:

H4: Environmental knowledge positively influences the organic food purchase intention.

The intention for organic food, however, may also be related to the search for healthier and more nutritious food, less harmful to the environment (Chen, 2007; de Toni et al., 2018; Smith & Paladino, 2010; Tarkiainen & Sundqvist, 2005), compatible with a sustainable lifestyle (Gam et al., 2020), favourable to good physical conditioning (Khayyam et al., 2021) and related to an interest in well-being and self-care (Teixeira et al., 2021).

In general, the health awareness construct refers to an individual's readiness to do something for their health (Nguyen et al., 2019; Nketiah et al., 2022; Rahamat et al., 2022). In other words, health awareness is the degree to which health concerns are considered in the individual's daily activities (Cavite et al., 2022; Xu et al., 2020). For Khayyam et al. (2021), health-conscious consumers seek health information, natural environmental concerns, and food consumption. In this case, consumers are more likely to have a favourable attitude towards buying organic food (Iqbal et al., 2021; Qi & Ploeger, 2021).

Another debate embedded in health awareness, as a predictor of positive behaviour towards healthier eating, has to do with the food supply crises that have occurred in recent years. According to (Chen, 2007), episodes such as mad cow disease and the foot-and-mouth disease epidemic, for example, caused widespread anxiety among consumers about the quality of the food they eat. More recently, the advent of the Covid-19 pandemic has considerably changed global food production, processing, and consumption at different levels, raising awareness of sustainability in general and consumption of organic food (Khayyam et al., 2021).

Furthermore, growing environmental awareness and concern for safer food has led people to question modern agricultural practices and their potential dangers – e.g., the use of pesticides and their residues in food (Chen, 2007). In this sense, organic foods are perceived as much healthier, natural, nutritious, and sustainable than conventional foods (Chen, 2007; Paul & Rana, 2012; Qi & Ploeger, 2021).

For example, Konuk (2018) examined and identified a positive effect of health awareness on purchase intentions of organic foods in pregnant women. For the author, health-conscious consumers, with the intake of foods with fewer harmful additives, more natural, nutritious, and lower risk of food poisoning, engage in healthy behaviours, such as eating healthy food products to maintain their well-being. Thus, we propose hypothesis number five (H5):

H5: Health consciousness positively influences the organic food purchase intention.

Another determining factor in the purchase intention of organic foods is consumers' knowledge of the "biology" of the food (Ayyub et al., 2018). Organic foods are food products grown without synthetic chemicals, such as herbicides, pesticides, and artificial fertilizers (Chen, 2007; Iqbal et al., 2021; Kumar et al., 2022). Thus, organic foods are produced using

renewable resources and safeguard ecological assets to increase sustainability and protect the environment, avoiding using antibiotics or growth hormones in production (Zayed et al., 2022). Therefore, organic food products promote the health of the ecosystem, land, and humans (Iqbal et al., 2021; Singh & Verma, 2017; Zayed et al., 2022).

According to Singh and Verma (2017) and Smith and Paladino (2010), consumers must have more profound knowledge about organic food. Many consumers consider organic products free of chemicals or natural, raw, and less processed than conventional foods. Given this, consumers understand the main features of organic products but do not understand organic farming practices and how they differ from traditional farming methods. Furthermore, the absence of a more profound understanding is affected by consumer distrust of organic labelling practices (Ayyub et al., 2018; Smith & Paladino, 2010). Although most consumers have a basic definition of organic, they lack full knowledge of its meaning, production process, and nutritional level (Kumar et al., 2022). So, knowledge is a significant influencer in purchasing organic foods (Singh & Verma, 2017; Smith & Paladino, 2010).

Some research has already aimed to understand the influence of organic knowledge on the purchase intention of such products. López-Galán et al. (2013), through TPB and with data obtained from consumers in two Spanish cities, identified that among the main factors determining the purchase of organic foods is the level of knowledge of organic foods of individuals about their purchase decisions. Similarly, in a survey that analysed the sociodemographic characteristics of consumers, lifestyles, and information available on the market about organic products, Gracia and De Magistris (2007) observed that the only sociodemographic characteristic that influences the purchase of organic is education and, consequently, knowledge of such a class of products. For the authors, consumers with higher education report having greater knowledge about organic products and, in this case, certain lifestyles oriented towards specific food diets (vegetarian and without additives) positively influence knowledge (Gracia & de Magistris, 2007).

Given the above, the sixth hypothesis (H6) is proposed:

H6: Organic food knowledge positively influences the organic food purchase intention.

In addition to the traditional influences of the constructions proposed by the TPB, some studies seek to observe the effects of moderation, mediation, and relationships between the predictors of intention to consume organic foods (Kim & Choi, 2005; Kumar et al., 2022; Liu et al., 2022; Smith & Paladino, 2010). For example, Dursun et al. (2019) state that the environmental psychology literature provides empirical evidence on the effect of subjective knowledge on pro-environmental behaviours. The research by Liu et al. (2022) even identified that this is the strongest predictor of environmental behaviours, including recycling.

In other words, an individual's environmental knowledge can be influenced by third parties on how much he knows about the environment (Dursun et al., 2019). For Cahyasita et al. (2021), consumers' preference for organic foods is influenced by how people important to them believe about consumer behaviour. Thus, people who favour organic food ingredients can influence other consumer attitudes. We assume, because of the above, that subjective norms positively influence the individual's environmental knowledge, impacting their intentions to purchase organic foods (H7):

H7: Subjective norms positively influence environmental knowledge.

Similarly, Fielding et al. (2008) report having observed in the literature that research shows that behaviourally relevant group norms significantly predict an individual's behaviour to engage in regular exercise and be active in household recycling. Practically, subjective norms

act when someone communicates beliefs, values, and thoughts to others (Teixeira et al., 2021). Consequently, individuals have beliefs about how their reference groups would view them if they were involved in a specific behaviour. These perceptions can influence consumers' decision processes, that is, their purchase intentions for organic foods.

Smith and Paladino (2010) also argue that subjective norms have been shown to influence buying behaviours and suggest that the influence of others is an essential factor in determining behaviour. Thus, health-conscious individuals consistently favour an influence on purchasing organic products from those around them (Nketiah et al., 2022). For example, Khayyam et al. (2021) have identified that food security concerns, in the context of Pakistani immigrants in China, can act as a potential barrier for foreigners to consume unfamiliar local and non-ethnic foods.

Especially with the advent of Covid-19, food security and health awareness have strongly influenced food consumption behaviour, as people have sought support and instruction for healthier eating with their social groups, including religious ones (Khayyam et al., 2021). Consequently, the eighth research hypothesis (H8) is outlined:

H8: Subjective norms positively influence health consciousness.

So far, we have presented some predictors of the intention to purchase organic foods based on the TPB theory, added three other constructs as predictors of such intention, and proposed some influence relationships. Returning to TPB, Ajzen (1991) mentions that intention refers to the extent to which an individual is willing to perform a particular behaviour and says how many times a person tries to achieve a specific behaviour.

Since humans are considered rational actors, the Ajzen plan to achieve a specific goal and execute accordingly, meaning that human behaviour is shaped by intentions (Akbar et al., 2019; Smith & Paladino, 2010). Therefore, the purchase intention of organic foods can result in the adoption of this purchase behaviour by consumers (Akbar et al., 2019; K. Lee, 2008; Mostafa, 2007; Sultan et al., 2020). Therefore, we present the last hypothesis of this study (H9):

H9: The organic food purchase intention positively influences green purchase behaviour.

2.3.Organic food product consumption amongst Generation Y consumers

Given many names (Millennials, Gen We, Echo Boomers), in 2020, the Generation Y cohort boasted the largest global spending power of all current cohorts with a projected global spending power of $1.4 trillion (Kasasa, 2021). This large spending power can be directly linked to the sheer size of the cohort, as is the case in South Africa. Around 35 percent of the population in South Africa formed the Generation Y cohort in 2021.

The age classification of the Generation Y cohort is widely debated, however, for the purpose of this study the age definition of Markert (2004) was used. The author classifies generations in 20-year increments, making Generation Y consumers in 2022 between the ages of 17 and 36 years (born in the range from 1986 to 2005) (Statistics South Africa, 2021). Constituting a third of South Africa’s population, the Generation Y cohort then becomes a lucrative market for any business or organization. Marketers must understand the workings of this Generational cohort should they want to fully capture the potential of this market segment.

Environmental awareness and responsible ecological behaviour have become a common occurrence in schooling curriculums of the Generation Y cohort starting from pre-school right through to tertiary education (Williams, 2017). As a result, the Generation Y cohort have become socially conscious consumers for both the natural environment and their own well-

being. These individuals have then been known to support organizations who incorporate corporate social responsibility programs in their business practices (Huh & Chang, 2017; Thieme et al., 2015). Therefore, any organization that intents to stay relevant in the Generation Y consumer market must consider the environmental movement in which the organic food plays a definite role.

There is a notable up-swinging trend for organic food product demand that can be accredited to health benefits linked with organic products (Yazar & Burucuoglu, 2019; Sing & Verma, 2017). Any consumer who actively seeks healthier alternatives in food products for reasons of health concerns or to preserve the environment will demand organic products (Sing et al., 2016; Xie et al., 2015). The Generation Y cohort are at the forefront of this recent behavioural change who consistently include organic food products in their diets (Melovic et al., 2020). Not only is this cohort changing their diet to be more environmentally friendly, but they are also willing to pay increased prices for these products because they regard the health benefits of these products as vital for their lifestyles (Melovic et al., 2020; Molinillo et al, 2020; Bizcommunity, 2017; Huh & Chang, 2017). Melovic et al. (2020) add that the youth are more susceptible to adopt organic food products over their counterpart Generation X and Baby Boomers a vital finding that warrants further investigation.

3. METHODS

This study is causal in nature and used a descriptive research design following a cross-sectional analysis to collect the required data. The methodology used in the research was quantitative, with the combination of Partial Least Squares Structural Equation Modeling (PLS-SEM) and fuzzy-set Qualitative Comparative Analysis (fsQCA). The multi-method approach of symmetric (PLS-SEM) and asymmetric (fsQCA) techniques are suitable for research that aims to validate hypotheses but also provide more detailed insights into the complex configurations of variables (Rasoolimanesh et al., 2021).

The scope of the target population was set to any Generation Y consumer residing in the Republic of South Africa during July 2021. Furthermore, the age range boundaries of participants were set at 18 to 35 years, as described in the literature.

The internationally renowned marketing research company IPSOS, Global Market Research and Public Opinion Specialist, captured the required data for this study. IPSOS owns a database of 40.000 participant panellists within the entire Republic of South Africa. As the research companies' participant pool size is so vast, a researcher's sample size target is often attained in full. The questionnaire's collection time-run was set over a three-day period in which the age parameters of 18-35 years were applied to ensure only Generation Y participants formed part of the study.

As mentioned, the sample size for this study was set at 500 participants, this was done to gain a good representation of the population and to conduct multivariate statistics effectively. To justify the use of 500 participants, various studies similar in nature were examined and their sample sizes studied, like Bernabeu et al. (2022), with a sample size of 415 respondents, Hansmann et al. (2020), with a sample size of 620, Wang et al. (2019), with a sample size of 518, Dasic et al. (2019), using a sample with 400 observations, Sing and Verma (2017) with 621 respondents, and Liang (2016), which study had a sample of 507 observations.

Additionally, the sample was calculated before the data collection. The minimum size was calculated using G*Power 3.1 software (Faul et al., 2009), recommended for use with PLS-SEM (Hair et al., 2022). The minimum sample size calculated is 98 respondents; since the sample consisted of 500 consumers, it is suitable for estimation by the PLS-SEM.

In relation to the measurement instrument and data collection technique, IPSOS data collecting company implemented their FastFacts data capturing system to collect the required

data. The FactFacts system entails participants undertaking a structured self-administered online questionnaire. Participants were allowed sufficient time to complete the questionnaire and participants were only allowed to complete the questionnaire once. The constructs that made up the measuring instrument were adapted from prior published and validated research. The questionnaire comprised two sections, Section A (demographics) and section B (measuring constructs).

To measure the independent variables (antecedents) of Generation Y consumers' organic food purchase behaviour, the following constructs were used: attitude towards organic foods (Yadav & Pathak, 2016); Subjective norms (Fielding et al., 2008); perceived behaviour control (Kim & Choi, 2005); environmental knowledge (Mostafa, 2007); health consciousness (Tarkiainen & Sundqvist, 2005) and organic food knowledge (Singh & Verma, 2017). Finally, the independent measuring variables of purchase intention and purchase behaviour were adapted from Mostafa (2007) and Lee (2008) respectively. The questionnaire itself utilised a six-point Likert scale ranging from one strongly disagree to six strongly agree. Additionally, a cover letter on the front of the questionnaire explained the purpose of the study, included relevant contact information, and informed participants that all information captured would be anonymous and reported solely in a statistical nature.

Regarding the implementation of the questionnaire, the FastFacts system forces participants to answer all questions before they are allowed to continue to the next section or page. The time frame of the questionnaire was set for a maximum of three days with a maximum of 500 responses, whichever is achieved first. The 500-participant response target was attained before the three-day limit; therefore, the response rate was 100 percent.

Figure 1 presents the conceptual model of the research, which aims to analyse the antecedents of organic food purchase behaviour amongst Generation Y consumers in South Africa.

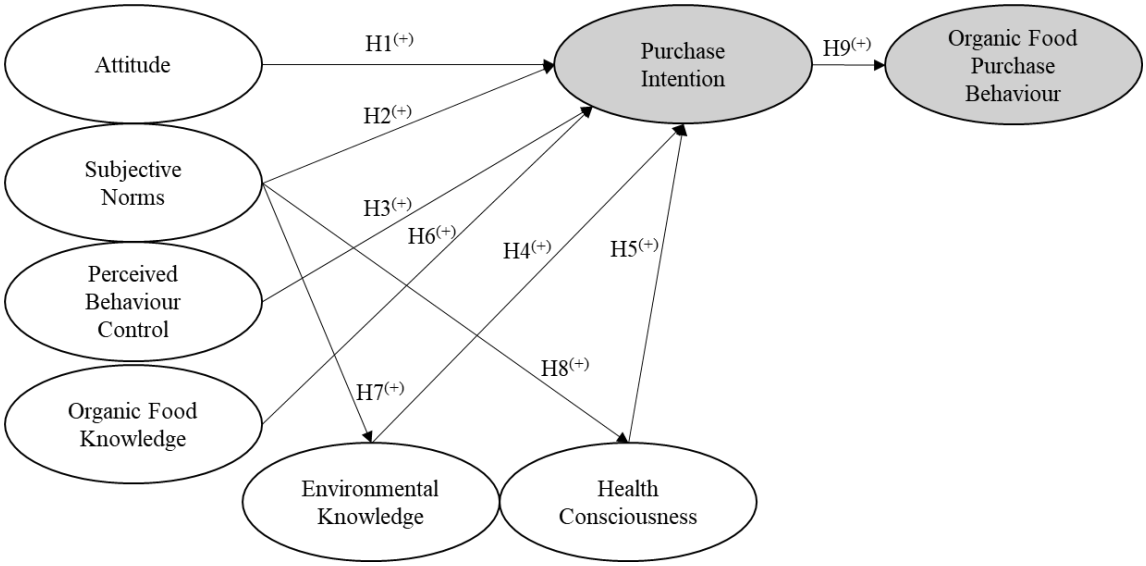

Figure 1. Conceptual model

4. RESULTS

Initially, we analyzed the measurement model by performing a Confirmatory Factor Analysis (CFA), considering that the indicators of the constructs were based on different authors. In this analysis, all factor loadings had values greater than 0.70 (Hair et al., 2022), and no indicator had to be excluded. Table 1 presents the CFA result and the questionnaire indicators.

Table I.

Confirmatory Factor Analysis

Questions	Factor loading	Mean	Standard deviation	T-value	P-value
Attitude Towards Organic Food					
(ATT1) Buying organic food is a good idea	0.909	5.040	1.025	60.183	0.000
(ATT2) Buying organic food is a wise choice	0.895	5.070	1.032	56.663	0.000
(ATT3) I like the idea of buying organic food	0.901	4.952	1.107	69.092	0.000
(ATT4) Buying organic food is pleasant	0.866	4.748	1.124	54.930	0.000
Subjective Norms					
(SN1) People who are important to me behave in an environmentally friendly way	0.866	4.496	1.259	53.219	0.000
(SN2) People who are important to me would approve of me behaving in an environmentally friendly way	0.819	5.082	0.984	34.277	0.000
(SN3) People who are important to me encourage me to behave in an environmentally friendly way	0.888	4.596	1.241	71.372	0.000
Perceived Behaviour Control					
(PBC1) By signing a petition that promotes environmental protection, every person can have a positive effect on society	0.750	4.998	1.138	22.095	0.000
(PBC2) I feel I can help solve natural resource problem by conserving water and energy	0.811	5.074	1.041	26.460	0.000
(PBC3) I can protect the environment by buying products that are friendly to the environment	0.842	5.166	0.979	42.249	0.000
(PBC4) There is a lot I can do about the environment	0.858	5.006	1.067	44.979	0.000
(PBC5) I feel capable of helping to solve the environment problems	0.793	4.820	1.092	30.651	0.000
Environmental Knowledge					
(EK1) I know that I buy products and packages that are environmentally safe	0.790	4.602	1.138	32.596	0.000
(EK2) I know more about recycling than the average person	0.822	4.506	1.165	42.159	0.000
(EK3) I know how to select products and packages that reduce the amount of waste ending up in rubbish dumps	0.843	4.592	1.192	49.082	0.000
(EK4) I understand the environmental phrases and symbols on product packages	0.788	4.606	1.184	29.530	0.000
(EK5) I know a lot about environmental issues	0.814	4.594	1.103	40.368	0.000
Health Consciousness					
(HC1) I choose food carefully to ensure good health	0.890	4.788	1.162	62.246	0.000
(HC2) I think of myself as a health-conscious consumer	0.907	4.536	1.248	78.043	0.000
(HC3) I think often about health issues	0.853	4.804	1.175	47.501	0.000
Organic Food Knowledge					
(OFK1) I know when food is organic or non-organic	0.876	4.422	1.343	60.139	0.000
(OFK2) I know the production process of organic products	0.850	4.138	1.417	50.429	0.000
(OKF3) I think that organic foods are safer to eat	0.799	5.016	1.043	34.968	0.000
Purchase Intention					
(PI1) Over the next month, I will consider buying organic products because they are less polluting	0.918	4.802	1.120	75.828	0.000
(PI2) Over the next month, I will consider switching to other organic brands for environmental reasons	0.935	4.678	1.116	107.639	0.000
(PI3) Over the next month, I plan to switch to an organic version of a product	0.911	4.616	1.112	81.877	0.000
Organic Food Purchase Behaviour					
(PB1) When I want to buy an organic product, I look at the ingredients label to see if it contains things that are environmentally-damaging	0.819	4.248	1.354	41.072	0.000
(PB2) I prefer organic products over normal products when their product qualities are similar	0.849	4.586	1.213	47.875	0.000
(PB3) I choose to buy organic products because they are environmentally-friendly	0.866	4.704	1.166	61.357	0.000
(PB4) I buy organic products even if they are more expensive than the non-organic ones	0.820	3.936	1.437	48.757	0.000

Note: ATT: Attitude Towards Organic Food; SN: Subjective Norms; PBC: Perceived Behaviour Control; EK: Environmental Knowledge; HC: Health Consciousness; OFK: Organic Food Knowledge; PI: Purchase Intention; PB: Organic Food Purchase Behaviour.

Next, we performed the PLSE-SEM analysis. We first analysed the measurement model. As all model constructs are reflexive, the analysis involved the criteria of convergent validity, discriminant validity, and reliability (Hair et al., 2022).

In the evaluation of convergent validity, all factor loadings of the indicators presented values greater than 0.7 and the Average Extracted Variance (AVE) values greater than 0.50 and are within the criteria (Hair et al., 2022). Table II presents the indicators for the evaluation of the measurement model.

Table II.

Assessment of the measurement model

Constructs	ATT	SN	PBC	EK	HC	OFK	PI	PB
ATT	**0.893**							
SN	0.456	**0.858**						
PBC	0.578	0.643	**0.812**					
EK	0.509	0.673	0.668	**0.812**				
HC	0.624	0.566	0.572	0.681	**0.883**			
OFK	0.737	0.488	0.544	0.634	0.68	**0.841**		
PI	0.756	0.527	0.613	0.627	0.659	0.697	**0.921**	
PB	0.658	0.554	0.492	0.662	0.660	0.714	0.773	**0.838**
Cronbach's Alpha	0,915	0,821	0,870	0,870	0,859	0,794	0,911	0,859
rho_A	0,916	0,827	0,872	0,872	0,866	0,798	0,911	0,865
Composite Reliability	0,940	0,893	0,906	0,906	0,914	0,879	0,944	0,904
Average Variance Extracted (AVE)	0,797	0,737	0,659	0,659	0,780	0,708	0,849	0,703

Note: ATT: Attitude Towards Organic Food; SN: Subjective Norms; PBC: Perceived Behaviour Control; EK: Environmental Knowledge; HC: Health Consciousness; OFK: Organic Food Knowledge; PI: Purchase Intention; PB: Organic Food Purchase Behaviour.

For the validation of the structural model, the first step was the evaluation of the Variance Inflation Factor (VIF), and all values were below 5 (Hair et al., 2022). Then, we evaluated the significance of the indicators with the bootstrapping technique and the effect sizes f^2 and R^2. The student's t-test indicates that all relationships are significant, except the relationship between subjective norms and purchase intention. The f^2 effect sizes are considered high, and the R^2 values were 0.672 for purchase intention, 0.597 for organic food purchase behaviour, 0.452 for environmental knowledge, and 0.321 for health consciousness. All the R^2 results are considered high.

Table III presents the assessment indicators of the structure model.

Table III.

Assessment of the structural model

Hyphotesis	Path coefficient	T-value	P-value	Effect size (f^2)	Signifficant at 5%?
H1. ATT -> PI	0,438	7,333	0,000	0.229	Yes
H2. SN -> PI	0,028	0,695	0,487	0.001	No
H3. PBC -> PI	0,100	2,139	0,033	0.013	Yes
H4. EK -> PI	0,157	3,094	0,002	0.026	Yes
H5. HC -> PI	0,121	2,639	0,008	0.018	Yes
H6. OFK -> PI	0,124	2,266	0,024	0.016	Yes
H7. SN -> EK	0,673	21,715	0,000	0.826	Yes
H8. SN -> HC	0,566	15,303	0,000	0.472	Yes
PI -> PB	0,773	29,211	0,000	1.481	Yes

Note: ATT: Attitude Towards Organic Food; SN: Subjective Norms; PBC: Perceived Behaviour Control; EK: Environmental Knowledge; HC: Health Consciousness; OFK: Organic Food Knowledge; PI: Purchase Intention; PB: Organic Food Purchase Behaviour.

According to the results, the relationships between subjective norms and purchase intention (H2) are not significant, a different result from previous studies (K. H. Lee et al., 2015; Matharu et al., 2021; Teixeira et al., 2021). A possible explanation may be that there is a total mediation effect of environmental knowledge and health consciousness in the relationship between subjective norms and purchase intention (Kim & Choi, 2005; Kumar et al., 2022; Liu et al., 2022; Smith & Paladino, 2010).

Multiple mediation models were analysed considering each model in isolation, only with the relationships of the independent variable (subjective norms) with both mediating variables (environmental knowledge and health consciousness) and the dependent variable (purchase intention), as well as of the mediators with the model-dependent variable. Regarding the analysis of multiple mediations, the mediation effect of these variables can be seen with a good level of adjustment to a saturated model since the SRMR indicator is less than 0.08 (Hair et al., 2022; Hu & Bentler, 1999) in all mediation's scenarios. It is observed that the effect of subjective norms on purchase intention is fully transmitted through the explanatory variables of environmental knowledge and health consciousness. The results indicate that subjective norms are one of the influencing factors in purchase intentions and that there is a full mediation by the other two constructs, supporting H2.

The conceptual model of the research is shown in Figure 1 and represents the research objective of analysing the antecedents of organic food purchase behaviour amongst generation Y consumers in South Africa.

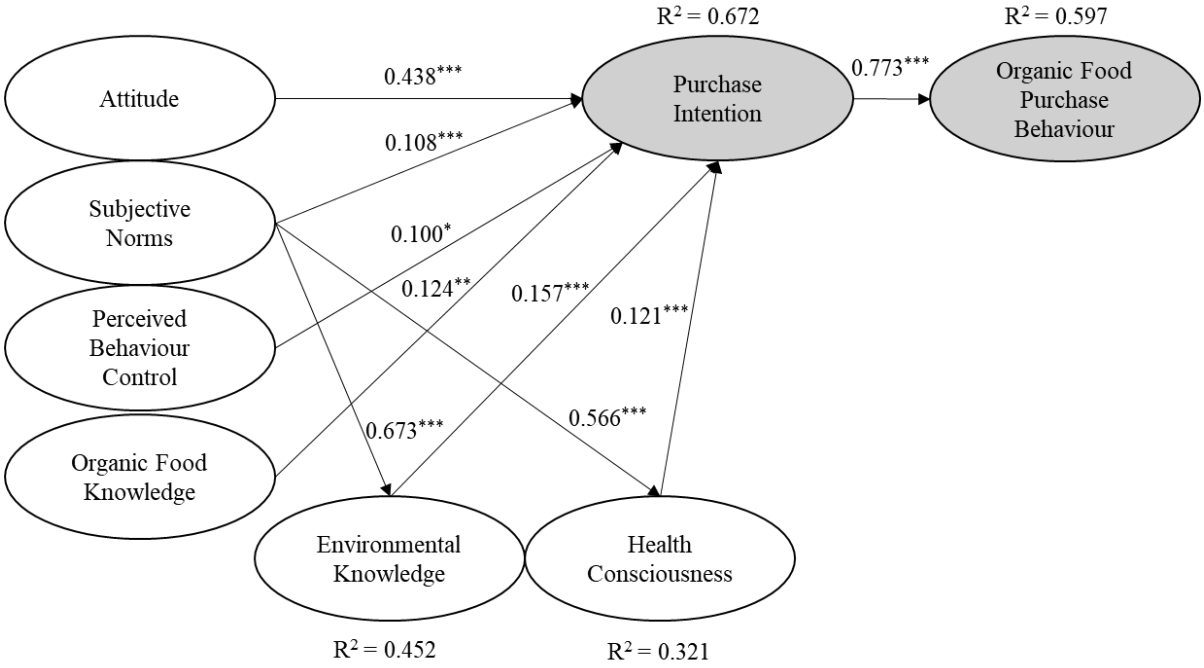

Figure 2. Complete empirical model

Note 1: NS = Not significant; * = significant at 5%; ** = significant at 1%; *** = significant at 0.1%.
Note 2: the result of the relationship between subjective norms and purchase intention was calculated considering the full mediation of environmental knowledge and health consciousness.

Next, we analysed the data with the fsQCA technique. For this, the scores of the latent variables were extracted from the PLS-SEM. The indicators were then standardized and calibrated between 0 and 1, considering 0.5 as the crossover point. The truth table with all possible configurations is presented in Table IV.

Table IV.

Truth table for the configurations to predict the Purchase Intention construct

ATT	SN	PBC	EK	HC	OFK	Number of observations	PI	Consistency
0	0	1	0	1	1	3	1	0.979
1	0	1	1	1	1	189	1	0.978
1	0	0	1	1	1	8	1	0.976
1	0	0	0	1	1	7	1	0.976
1	0	1	1	0	1	13	1	0.975
1	0	1	1	1	0	30	1	0.971
0	0	1	1	1	1	5	1	0.970
1	0	1	0	1	1	31	1	0.971
1	0	1	0	1	0	17	1	0.967
1	0	1	1	0	0	10	1	0.966
1	0	0	0	1	0	4	1	0.961
0	0	1	0	1	0	6	1	0.959
1	0	1	0	0	1	21	1	0.956
1	0	0	0	0	1	9	1	0.955
0	0	1	1	1	0	5	1	0.951
1	0	1	0	0	0	21	1	0.939
0	0	0	0	1	0	11	1	0.936
0	0	0	1	0	0	3	1	0.928
1	0	0	0	0	0	17	1	0.920
0	0	1	1	0	0	13	1	0.914
0	0	1	0	0	0	21	1	0.882
0	0	0	0	0	0	36	1	0.807

Note: ATT: Attitude Towards Organic Food; SN: Subjective Norms; PBC: Perceived Behaviour Control; EK: Environmental Knowledge; HC: Health Consciousness; OFK: Organic Food Knowledge; PI: Purchase Intention; PB: Organic Food Purchase Behaviour.

Table V presents the sufficient configurations, with acceptable consistency (>0.8) and coverage (>0.2). There are six sufficient configurations for high levels of purchase intention. In the analysis of necessary conditions (Table VI), no indicator reached consistency and coverage values greater than 0.9, indicating no necessary condition exists.

Table V.

Sufficient configurations of Purchase Intention

Configurations	Raw coverage	Unique coverage	Consistency
Configurations for high level of PI			
PI = *f (ATT, SN, PBC, EK, HC, OFK)*			
ATT*~SN*PBC	0.730	0.011	0.941
~SN*PBC*HC	0.695	0.006	0.944
ATT*~SN*HC*OFK	0.662	0.0028	0.965
ATT*~SN*~EK	0.434	0.002	0.910
~SN*~EK*~OFD	0.345	0.002	0.813
~ATT*~SN*~HC*~OFK	0.239	0.002	0.782
Solution coverage: 0.765			
Solution consistency: 0.861			

Note: ATT: Attitude Towards Organic Food; SN: Subjective Norms; PBC: Perceived Behaviour Control; EK: Environmental Knowledge; HC: Health Consciousness; OFK: Organic Food Knowledge; PI: Purchase Intention; PB: Organic Food Purchase Behaviour.

Table VI.

Necessary configurations of Purchase Intention

	Outcome		Outcome Negation	
Condition	**Consistency**	**Coverage**	**Consistency**	**Coverage**
ATT	0.947	0.853	0.880	0.394
~ATT	0.313	0.713	0.545	0.925
SN	0.593	0.910	0.876	0.414
~SN	0.768	0.855	0.576	0.816
PBC	0.937	0.819	0.912	0.402
~PBC	0.308	0.762	0.494	0.890
EK	0.839	0.889	0.861	0.426
~EK	0.454	0.750	0.661	0.826
HC	0.870	0.864	0.845	0.404
~HC	0.394	0.727	0.617	0.849
OFK	0.857	0.889	0.837	0.411
~OFK	0.425	0.727	0.663	0.844

Note: ATT: Attitude Towards Organic Food; SN: Subjective Norms; PBC: Perceived Behaviour Control; EK: Environmental Knowledge; HC: Health Consciousness; OFK: Organic Food Knowledge; PI: Purchase Intention; PB: Organic Food Purchase Behaviour.

Table VII presents the six causal paths, identifying the core and contributing causal conditions and if the indicator is present or absent in the configuration.

Table VII.

Configurational paths for Purchase Intention

Condition	**Path1**	**Path2**	**Path 3**	**Path4**	**Path5**	**Path6**
ATT	●		●	●		○
SN	○	○	○	○	○	○
PBC	●	●				
EK				○	○	
HC		●	●			○
OFK			●		○	○

Note 1: ATT: Attitude Towards Organic Food; SN: Subjective Norms; PBC: Perceived Behaviour Control; EK: Environmental Knowledge; HC: Health Consciousness; OFK: Organic Food Knowledge; PI: Purchase Intention; PB: Organic Food Purchase Behaviour.
Note 2: ● = contributing causal conditions (present); ○ = contributing causal conditions (absent).

5. DISCUSSION

The research analysed organic food purchasing behaviour among Generation Y consumers in South Africa, applying a conceptual model validated through symmetrical and asymmetrical methods, providing a comprehensive view of the determinants and configurations that lead to high levels of consumption of organic. The demand for organic food, which used to be prominent in developed countries, is increasing significantly in the context of emerging

economies that face environmental severe problems and unsustainable consumption (Nguyen et al., 2019).

In the PLS-SEM results, our assessment is in line with previous research. The constructs that make up the TPB confirmed the positive influence on the purchase intention of organic products in its three dimensions. The results are consistent with the literature related to the impact of attitude (Matharu et al., 2021; Nguyen et al., 2019), the subjective norms (Matharu et al., 2021; Teixeira et al., 2021; Yadav & Pathak, 2016) and behaviour control (Cavite et al., 2022; Kim & Choi, 2005; Yadav & Pathak, 2016).

Environmental knowledge was also confirmed as a critical factor for purchase intention, resulting in environmentally friendly behaviour (Dursun et al., 2019; Mostafa, 2007; Wu et al., 2022; Yadav & Pathak, 2016). The purchase intention of organic consumers cannot be dissociated from consumers' knowledge about the product (Singh & Verma, 2017). Consumers need to know what they buy to satisfy their needs and wants. Thus, food knowledge is an essential factor that can affect consumer behaviour in which knowledge is cognitive learning (Singh & Verma, 2017). The same result validates knowledge about organic products, positively influencing purchase intention (Gracia & de Magistris, 2007). However, for Singh and Verma (2017), organic and non-organic food buyers realized that organic products are free of pesticides and chemical fertilizers, pure, natural, and healthy.

The influence of health consciousness was positive on purchase intention, demonstrating concern for health with the intake of natural products (Chen, 2007; Gam et al., 2020; Konuk, 2018; Paul & Rana, 2012; Qi & Ploeger, 2021). The results of Gam et al. (2020) supported the TPB theoretical framework in explaining the effect of health awareness on consumers' purchasing behaviour in relation to organic textile decoration. Health awareness proved to be the second most significant factor influencing consumers' intention to purchase green furniture in China (Xu et al., 2020). However, health awareness does not explain general attitudes toward organic foods in the studies by Tarkiainen and Sundqvist (2005) and Zayed et al. (2022).

The symmetric analysis (PLS-SEM) results also proved the multi full mediation effect of environmental knowledge and health consciousness in the relationship between subjective norms and purchase intention, indicating the relationship and importance of these constructs for organic consumption intention models.

The fsQCA results complement the PLS-SM results. Comparing the different antecedent configurations allowed a deeper analysis of the patterns that lead to positive purchase intent outcomes. The first significant result is that there is no necessary condition for high levels of purchase intention for organic. The results showed six sufficient configurations that lead to high levels of purchase intention. Although the results of the PLS-SEM point to the positive influence of all the variables proposed in the purchase intention, fsQCA results indicate that not all the indicators of the constructs are essential to stimulate the intention.

In the different configurations that the technique presented, at most, three variables in one of the paths (Path 3) were offered as sufficient configurations, which consider attitude, health consciousness, and organic food knowledge. Path 1 (with attitude and perceived behaviour control) and Path 2 (with perceived behaviour control and health consciousness) have only two variables. Path 4 presents only one variable (attitude), and only with it do some respondents have a high purchase intention. Finally, in paths 5 and 6, the results demonstrate some variables that, without them, it is already possible to have high purchase intention.

Based on the results, we can make three main contributions. *First*, we prove the importance of TBP and additional variables in a robust model with the high explanatory power of consumer behaviour in relation to sustainability in a developing country. The constructs of environmental knowledge, organic food knowledge, and health consciousness were the ones with the most significant influence on behavioural intention, being second only to attitude.

Other studies, such as that of Gam et al. (2020), supported the TPB theoretical framework in explaining the consumers' purchasing behaviour concerning organic textile decor, incorporating health consciousness in the model. Liu et al. (2022) showed that attitude, subjective norms, and perceived behavioural control positively relate to recycling intention in the United States. And Wu et al. (2022) incorporated environmental knowledge into TPB and had positive results in explaining waste management behaviour.

Second, we demonstrate that having all the antecedent behaviours is unnecessary to have a high sustainable purchase intention. The fsQCA results showed that several different configurations, with few antecedent behaviours, lead to high levels of purchase intention. This result validates and corroborates research like Yazdanpanah and Forouzani (2015), which demonstrated that the perceived behaviour control and subjective norms were not significant predictors of intention. And Zayed et al. (2022) showed that consumers' subjective norms and perceived behavioural control did not influence the purchase intention of organic products in Egyptian consumers. In the study by Cahyasita et al. (2021), subjective norms also did not confirm as predictors of the will to return to consuming organic foods.

Third, we validated a multiple full mediation of environmental knowledge and health awareness in the relationship between subjective norms and purchase intention. These results are essential for behavioural research related to sustainability as it demonstrates that these three constructs do not need to be incorporated simultaneously into theoretical models. It also indicates that environmental knowledge (in the first place) and health awareness (in the second place) impact more on the purchase intention of organics than the subjective norms. From a practical point of view, this indicates that sustainable education, which encourages environmental knowledge and health consciousness, can promote more sustainable consumption.

By generating new insights for encouraging sustainable consumption, our research also makes practical contributions that can address specific indicators of the SDGs. In SDG 2 - End hunger, achieve food security and improved nutrition and promote sustainable agriculture - by better understanding the background of organic consumption, the research indirectly stimulates and promotes sustainable agriculture. In SDG 3 - Good health and well-being - the research incorporated and validated the health consciousness construct in a model of organic consumption, which is related to the pursuit of a sustainable lifestyle (Gam et al., 2020) and related interest in well-being and self-care (Teixeira et al., 2021). The research results demonstrate that the path to good health and well-being can be associated with the consumption of healthy foods. In SDG 12 - Ensuring sustainable consumption and production patterns - research is directly focused on understanding the antecedents of sustainable consumption and important insights to stimulate the increase and production of sustainable consumption in a developing country.

6. CONCLUSIONS

The current system of food production and consumption is not compatible with climate change mitigation goals (Brunin et al., 2022; Tilman & Clark, 2014), and sustainable food production and consumption contribute to protecting and respecting the biodiversity of ecosystems (Willett et al., 2019). This article contributes to the debate on consumer behaviour and sustainability issues by providing a deeper understanding of the dynamics between the factors that can drive organic food purchasing behaviour. We present a robust and highly explanatory model to analyse the antecedents of organic food purchasing behaviour among Generation Y consumers in South Africa.

The research offers an original perspective on the sustainable consumption behaviour of a sample of generation Y from a developing country, with a combination of techniques that

give greater robustness to the results. The results reinforce the complexity of determining the antecedents of sustainable consumption, as different configurations can lead to high consumption. However, the importance of some key variables is highlighted, such as attitude and health consciousness, which showed significant results in both analysis techniques. The article also contributes empirical results that help achieve the Sustainable Development Goals (SDG).

Despite the care taken in formulating the model and efforts to ensure methodological rigor, the research has limitations that we must address. The sample was carefully collected from a good number of Y-generation respondents from South Africa, but it is not probabilistic, being a convenience sample, which limits the generalizability of the results. Another limitation point is in the model, where the variables used do not include all the influencers of organic consumption.

We can consider some suggestions for future research. The model and questionnaire can be applied in developing and developing countries, comparing results. Other constructs can be added in the model, in order to further comprehend the organic food purchase and behaviours antecedents', like personality traits, socioecological values, among others. Multiple full mediation in subjective norms can change in different contexts and types of consumption. Qualitative and longitudinal research that explores antecedents of consumption.

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