Journal of Agribusiness and Rural Development

SHAPING INTENTION TO PAY ATTENTION TO HEALTH CLAIMS

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Abstract. Health claims increase consumer awareness, knowledge, and health consciousness. However, front and back labels, which are widely used for marketing purposes, raise doubts about consumer tendencies towards paying attention to health claims and reasons for their placement. Therefore, the aim of this article is to investigate, using the Theory of Planned Behaviour, the extent to which intention to pay attention to health claims is determined by its predictors. An extended model based on the theory was used to identify factors that shape attitudes towards health claims and the intention to pay attention to them. In order to achieve this, we conducted a study on 552 people, and the data allowed us to verify the statistically proposed theoretical model. The study revealed that while trust is the main factor determining attitude towards health claims, the impact of subjective knowledge is negative. Research is important from the perspective of the theoretical understanding of consumer attitudes but can also be practically used to properly influence consumers in terms of consumption of healthy products.

Keywords: food claims, health consciousness, consumer intentions, health education, theory of planned behaviour

INTRODUCTION

Consumption of unhealthy food is one of the major risk factors for developing non-communicable diseases (De-Magistris, 2020). These diseases are specifically caused by a diet rich in high-energy food, fat, sugar and salt, and low in fruit, vegetables and dietary fibres (Montagnese et al., 2019). The awareness of these facts among consumers is constantly increasing, which is reflected in the growing interest in consumption of products with higher nutrient compositions (Bloomberg, 2019). One of the key mechanisms proposed to encourage the implementation of a healthier diet is the provision of information on food packaging (Jo and Lusk, 2018), such as health claims.

Health claims are non-obligatory texts on food labels. They describe the relationship between a food substance (food, food component or dietary supplement ingredient) and the reduced risk of disease or health-related conditions (USFDA, 2021). Their function is only informative, but their form is very precisely described by lawmakers. Since their introduction, consumer interest in claims has been steadily growing (Tugault-Lafleur and Black, 2019). According to Ballco and Gracia (2020), consumers would use them more often if they were more available. The use of health claims has already increased significantly, especially in EU countries (Pravst et al., 2018). Nowadays, their implementation is a common practice (Hieke et al., 2016). However, there is no conclusive information as to whether claims are really effective (Talati et al., 2018).

Setiawati et al. (2018), in their research on healthy eating based on the Theory of Planned Behaviour (TPB), have shown that there is a positive relationship between health awareness (consciousness) and attitudes towards

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certain foods. As indicated above, education and trust may also influence attitudes. Moreover, HCs may create more favourable attitudes towards products (Kozup et al., 2003). These observations are in accordance with the Theory of Planned Behaviour (Ajzen, 1991), which is a popular socio-psychological model used for understanding and predicting intentions and behaviour (2015). In addition, Ajzen has suggested that attitudes are usually a good predictor of intentions when their intensity is high (Ajzen, 1991). We modified this variable and used attitude towards paying attention (APA) to health claims, as specified in our survey. Therefore, with a positive and strong attitude towards paying attention to health claims, the intention to pay attention to health claims should be stronger. Moreover, it has been shown that attitudes have strong correlations with behavioural intentions (Shaw and Shiu, 2002). Subjective norm (SN) is another important factor influencing intentions. It may be defined as social pressure or influence that enables people to perform a certain behaviour (Sreen et al., 2018). According to Ajzen (1991), "the global measure of SNs is the extent to which important others would approve or disapprove of an individual's behaviour". In the majority of studies on the topic, it has been demonstrated that SNs play a significant role in determining intentions (Bhutto et al., 2019; Sultan et al., 2020), but some authors claim they are an irrelevant predictor (Paul et al., 2016). Finally, perceived behavioural control (PBC) is the third factor that influences Intentions. This is the perceived ease or difficulty in carrying out a particular behaviour and, therefore, it reflects past experiences and anticipated obstacles (Paul et al., 2016).

Although TBP is a popular social-psychological model based on attitudes, subjective norms and perceived behavioural control (Ajzen, 1991), to the best of our knowledge, there are no articles describing health claims tested under TPB that emphasize variables such as attitude towards paying attention (APA) to health claims or intention to pay attention (IPA) to health claims.

Overall, there is no consensus regarding the impact of health claims on intentions and consequently on behaviour (Steinhauser and Hamm, 2018). There are also discrepancies in the reported effects of various claims (Hieke et al., 2015; Kaur et al., 2017). Therefore, the aim of this article is to investigate, using the Theory of Planned Behaviour, the extent to which intention to pay attention to health claims is determined by its predictors: attitude towards paying attention to health claims,
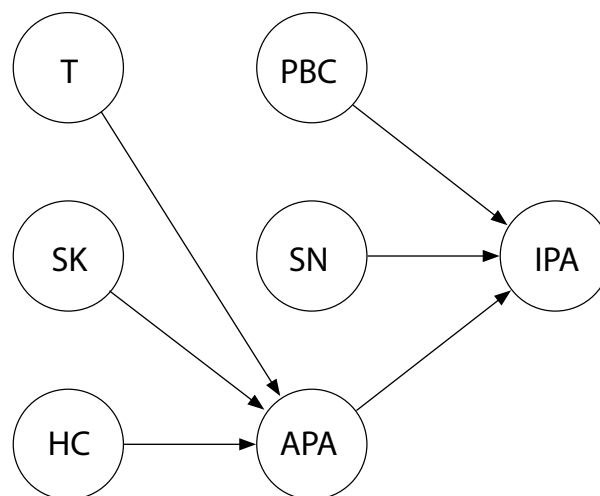

Fig. 1. SEM model
IPA – intention to pay attention to health claims, PBC – perceived behavioural control, SN – subjective norm, APA – attitude towards paying attention to health claims, T – trust, SK – subjective knowledge, HC – health consciousness.
Source: own elaboration based on Ajzen, 1991.

subjective norm and perceived behavioural control. Moreover, the secondary aim is to discover to what extent attitudes are influenced by health consciousness, trust and knowledge, which for the purposes of this study will be presented as subjective knowledge about the impact of what is eaten on health. This led to the following hypothesis: health consciousness (H1), subjective knowledge (H2) and trust (H1) are positively related to attitude towards paying attention to health claims; attitude towards paying attention to health claims (H4), subjective norm (H5), perceived behavioural control (H6) are positively related to intention to pay attention to health claims. The empirical model is presented in Figure 1.

MATERIALS AND METHODS

The research was based on Ajzen's Theory of Planned Behaviour (Ajzen, 1991). The model used in this paper consists of several variables, which include items verified by other authors, used in other studies and presented in previously published articles. The variables used are attitude towards paying attention (APA) to HCs – including 5 items e.g., bad (1) – good (7) (Han et al., 2019), perceived behavioural control (PBC) – including 3 items

e.g., "Whether or not I pay attention to health claims is completely up to me" (Contini et al., 2020; Kim and Hwang, 2020; Yadav and Pathak, 2016) and subjective norm (SN) – including 3 items e.g., "Most people who are important to me pay attention to health claims" (Aitken et al., 2020; Contini et al., 2020). All of them were used as predictors of intention to pay attention (IPA) to health claims (HCs) – including 3 items e.g., "I intend to pay attention to health claims while shopping" (Tudoran et al., 2009). In addition, since consumers with a particular concern for health and a healthy diet are more interested in health-related information (Hoppert et al., 2014), but also based on the research by Carrillo et al. (2014) and Lähteenmäki (2013) who claim that knowledge of claims influences food choices, and based on the research by Klopčič et al. (2020) showing the role of trust, the authors have decided to add 3 variables to the analysed model. The following 3 predictors of attitudes were used – subjective knowledge about the impact of what is eaten on health (SK) – including 3 items e.g., "I know about food substances and their relation to health" (Piha et al., 2018), trust (T) – including 3 items e.g., "I trust health claims" (Konuk, 2019), and health consciousness (HC) – including 4 items e.g., "I reflect about my health a lot" (Hansen et al., 2018; Michaelidou and Hassan, 2008; Talwar et al., 2021). Items in all questions were rated on a 7-point Likert scale.

The main survey was conducted online among a sample of 649 USA residents and based on the Amazon Mechanical Turk (MTurk) platform. The participants were informed about the volatility of the study, the possibility of its termination at any time and the purposefulness of the study and the use of the collected data. They were also compensated for completing the survey. After rejecting surveys that did not pass the verification with regard to attention checking questions, a sample of 552 respondents was selected for the final analyses. Since our research focused on health issues and food purchases, the sample size obtained produced very reliable and credible results. The mean age of the respondents was 39.54 years (SD = 12.33, Min = 18, Max = 75). The group of respondents was evenly divided according to social and economic demographics (Table 1).

In order to verify the obtained data, the research tool was first assessed before the structural research model was created. In addition, bootstrapping was performed on 5,000 re-samples. At the beginning of the analysis, the convergent and discriminant validity of the given

Table 1. Description of the study group

Variable	Option	Frequency	Percent
Gender	Female	285	51.6
	Male	262	47.5
	Prefer not to say	5	0.9
Education	Lower than high school	1	0.2
	High school or equivalent	123	22.3
	Bachelor's degree	301	54.5
	Master's degree	106	19.2
	Doctorate	11	2.0
	Other	10	1.8
Household size	1	58	10.5
	2	124	22.5
	3	151	27.4
	4	160	29.0
	5	40	7.2
	more than 5	19	3.4
Employment	Full-time	335	60.7
	Part-time	74	13.4
	Retired	29	5.3
	Self-employed	50	9.1
	Student	11	2.0
	Unable to work	7	1.3
	Unemployed	46	8.3
Income	≤ $19.999	35	6.3
	$20.000–$29.999	48	8.7
	$30.000–$39.999	60	10.9
	$40.000–$49.999	72	13.0
	$50.000–$59.999	77	13.9
	$60.000–$69.999	86	15.6
	$80.000–$89.999	53	9.6
	$90.000 ≥	121	21.9
Buying food	More than 4 times a week	16	2.9
	3–4 times a week	75	13.6
	Twice a week	210	38.0
	Once a week	218	39.5
	Less than once a week	33	6.0

N = 552.
Source: own survey.

items and the composite reliability of variables (Hill and Hughes, 2007) were checked. Convergent validity tests whether constructs that are expected to be related are, in fact, related. Discriminant validity tests whether constructs that should have no relationship do not really have it. Finally, composite reliability measures internal consistency within scale items. The hetero-trait-monotrait ratio of correlations (HTMT), which is a measure of similarity between latent variables, was also used to assess discriminant validity. Finally, structural equation modelling (SEM), also known as path analysis, was conducted. SEM includes models that explain relationships between measured (observable/manifest) and latent (non-observable) variables. It is used to analyse structural relationships and allows cause-and-effect relationships to be identified, considering different dependencies at the same time. All analyses were conducted using RStudio, R Compiler (Revelle, 2013), Lavaan and SemTool packages (Rosseel, 2012).

RESULTS

Assessment of the research tool
Confirmatory factor analysis showed that all factor loadings exceeded the min of 0.6 (Chin, 1998). Cronbach's α coefficients ranged from 0.75 to 0.95. Additionally, the composite reliability (CR) parameter ranged between 0.75–0.95, which is above the cut-off value (Hair et al., 2011). Finally, in all cases, the average variance extracted (AVE) was higher than the approved minimum of 0.5 (Hair et al., 2011) and ranged from 0.51 to 0.87. Thus, it can be concluded that the results show internal consistency of multiple indicators (Bagozzi and Yi, 2012). All the results are presented in Table 2.

Table 2. Confirmatory factor analysis

Construct	Item	Loading	p value	Cronbach's α	CR	AVE
1	2	3	4	5	6	7
Health consciousness (HC)	HC1	0.73	***	0.83	0.75	0.51
	HC2	0.74	***			
	HC3	0.72	***			
	HC4	0.65	***			
Subjective knowledge (SK)	SK1	0.85	***	0.9	0.85	0.72
	SK2	0.82	***			
	SK3	0.86	***			
Trust (T)	T1	0.76	***	0.91	0.75	0.64
	T2	0.84	***			
	T3	0.78	***			
Attitude towards paying attention (APA) to health claims	APA1	0.86	***	0.94	0.93	0.76
	APA2	0.9	***			
	APA3	0.84	***			
	APA4	0.93	***			
	APA5	0.84	***			
Subjective norm (SN)	SN1	0.79	***	0.9	0.82	0.67
	SN2	0.83	***			
	SN3	0.84	***			

Table 2 – cont.

1	2	3	4	5	6	7
Perceived behavioural control (PBC)	PBC1	0.63	***	0.74	0.76	0.53
	PBC2	0.94	***			
	PBC3	0.6	***			
Intention to pay attention (IPA) to health claims	IPA1	0.95	***	0.95	0.95	0.87
	IPA2	0.94	***			
	IPA3	0.91	***			

*** $p < 0.001$.
Source: own survey.

Table 3. Discriminant validity

Construct	HC	SK	T	APA	SN	PBC	IPA
Health consciousness (HC)	1.00						
Subjective knowledge (SK)	0.71	1.00					
Trust (T)	0.39	0.47	1.00				
Attitude towards paying attention (APA) to health claims	0.33	0.27	0.56	1.00			
Subjective norm (SN)	0.52	0.48	0.66	0.49	1.00		
Perceived behavioural control (PBC)	0.35	0.25	0.13	0.20	0.29	1.00	
Intention to pay attention (IPA) to health claims	0.56	0.53	0.67	0.54	0.72	0.30	1.00

Source: own survey.

The heterotrait-monotrait ratio of correlations (Table 3) showed results below the suggested 0.9 (Henseler et al., 2015), which indicates that all parameters were independent. This also indicates that discriminant validity was established (Henseler et al., 2015). As suggested by Schumacker and Lomax (2017), various measures were used to evaluate the model and all met the suggested ranges: RMSEA = 0.060, GFI = 0.907, AGFI = 0.876, CFI = 0.959, NFI = 0.933, chi^2 = 673.4 and df = 225 (Hair et al., 2017; Marsh and Hocevar, 1985). As the validity of the proposed model was confirmed by the above results, further analyses of individual relationships were performed.

Path analysis

The final part of the study was a path analysis (Table 4), which can also be described as a causal modelling approach to exploring the correlations within a defined network. The applied model explained the high level of variability of intention to pay attention (IPA) to health claims (R^2 = 0.66). The impact of trust (T) on attitude towards paying attention (APA) to HCs (H3) was 0.61 ($p < 0.01$), and in the case of health consciousness (HC) (H1), it totalled 0.34 ($p < 0.01$). The impact of subjective knowledge (SK) (H2) on APA was statistically significant, but its direction was different than assumed ($\beta = -0.36$, $p < 0.01$). Among the 3 variables affecting intentions, 2 out of the 3 hypotheses were confirmed. Thus, β for the effect of attitude towards paying attention (APA) on intention to pay attention to HCs (IPA) (H4) was 0.17 ($p < 0.01$), while in the case of subjective norm (SN) (H5), it equalled 0.61 ($p < 0.01$). The hypothesis regarding the impact of perceived behavioural control (PBC) on IPA (H6) was not confirmed ($\beta = 0.03$, *ns*).

Table 4. SEM results

Endogenous Variable	Exogenous Variable	Beta	B	SE	p-value	CI lower	CI upper
IPA	APA	0.17	0.24	0.09	**	0.04	0.39
	SN	0.71	1.22	0.23	***	0.88	1.80
	PBC	0.03	0.06	0.09	*ns*	–0.13	0.23
APA	HC	0.34	0.43	0.16	**	0.17	0.79
	T	0.61	0.78	0.12	***	0.56	1.06
	SK	–0.36	–0.46	0.15	**	–0.81	–0.22

*** $p < 0.001$, ** $p < 0.01$, *ns* – not significant.
Source: own survey.

DISCUSSION

The aim of this article is to investigate, using the Theory of Planned Behaviour, the extent to which intention to pay attention to health claims is determined by its predictors. For this purpose, the influence of perceived behavioural control (PBC), subjective norm (SN) and attitude towards paying attention (APA) to health claims on the above-mentioned intention has been analysed. In addition, the role of trust (T), subjective knowledge (SK) and health consciousness (HC), as well as its impact on attitudes, have been verified. Our research is not representative, however, the size of the sample and its sociodemographic structure allow us to conclude that the results of our research are highly reliable.

The first finding resulting from this study concerns trust. This factor affects attitude towards paying attention to health claims the most (Table 4). This means that the more consumers trust health claims, the more they may prefer products associated with them. This can be a significant clue for food producers when it comes to using claims that consumers already trust. The results of this study are somewhat similar to those obtained by Benson et al. (2019) who showed that consumers trust claims. Other research showed that confidence in claims is one of the main determinants of consumer food product selection (Annunziata et al., 2016). Additionally, trust may appear to be a powerful tool for customers to make food choices, which is in line with our results showing that trust is the most significant factor influencing APA. However, the subject of trust seems to require further investigation.

We have assumed that, like trust, subjective knowledge about health claims would also be an important factor influencing attitudes (Table 4). However, the results showed that SK had the opposite effect on attitudes. Thus, the higher its level, the more negative the attitude towards health claims. Therefore, it might be the case that for some customers, health claims constitute nothing special. Moreover, it may seem to them that claims are only another marketing tool (Pereira et al., 2019), only raising the price of the product and, as such, the product may seem unnecessarily expensive. Research on the role of knowledge regarding food and health claims is not homogeneous. Hung and Verbeke (2019) claimed that there was a positive association between understandability and reliance on health claims. However, there is also research that found the opposite results, more in line with those achieved in this study. According to Cavaliere et al. (2016), consumers with low nutritional knowledge have a greater interest in nutritional claims. It seems that the role of knowledge is definitely worth further analysis.

In the presented study, we have shown that health consciousness has a significant impact on attitudes (Table 4). Its importance has been confirmed by various trials in which it has been indicated that health consciousness acts as a motive for particular food purchasing and consumption (Hansen et al., 2018) or buying intentions (Shin and Mattila, 2019). The results from this study are in opposition to articles demonstrating that health consciousness may not affect intentions (Pino et al., 2012). Nonetheless, as indicated in the given study, claims build a certain amount of health consciousness in societies in which the introduction of claims has been underpinned.

In addition, health consciousness itself is also important for people to pay attention to claims.

In this study, we have further shown that just as the influence of certain predictors on attitudes is diverse, so is it the case for intention predictors – attitude, subjective norm and perceived behavioural control. Within the context of the first two variables, we have proven that intentions are more influenced by subjective norm than APA. However, the influence of APA is still significant (Table 4). The results of our research are also consistent with the results obtained by various authors who refer to subjective norm and claim that it plays a significant role in determining intentions (Bhutto et al., 2019; Sultan et al., 2020). However, the present results are inconsistent with those of some researchers who have emphasized that the relationship between attitudes and intentions is very high (Al-Swidi et al., 2014), or that attitudes are the primary factor influencing intentions (Spence et al., 2018). We have assessed subjective norms and noted that they have a great influence on intentions, further indicating that paying attention to health claims is still more conditioned by external (social) factors than internal ones, which also means that consumers are more driven by the belief that they should eat more healthily than they should or would like to. Thus, the influence of health claims on intentions is not simple. Nevertheless, it is associated with some intellectual effort and the occurrence of subjective norms related to relying on it.

In this study, like was done in the one by Yazdanpanah and Forouzani (2015), we have shown that perceived behavioural control does not significantly influence intentions (IPA), which stands in contrast to the results obtained by Carfora et al. (2021), who indicated that perceived behavioural control may be the most important predictor of intentions. We have estimated that the problem regarding the lack of perceived behavioural control influence may be related to whether, according to consumers, behavioural control relates to physical access to the product containing claims, or perhaps to the fact of seeing and understanding the claims.

An important scientific implication of our research is the confirmation of the impact of subjective knowledge, health awareness and trust on attitude towards paying attention to health claims, and at the same time showing that the level of knowledge can have a negative impact on attitudes. This stands in opposition to the assumptions underlying the introduction of claims into the legislature of many countries. It was assumed that a high level of knowledge about claims would mean a stronger reliance on them. It turns out that this does not have to be true. In addition, as the level of trust of individual consumers varies, despite having a strong overall impact on attitudes, the practitioners might consider increasing the importance of claims even more by, for example, focusing on their occurrence on the packaging in accordance with the guidelines of the relevant organizations (FDA, EFSA), while emphasizing the authority of those organizations. They might also consider further distinguishing claims from other texts, including marketing claims. In addition, both individual governments and food producers should be more focused on creating information or marketing campaigns emphasizing the role of claims, especially in the context of trust. In the case of the inverse impact of the level of knowledge on consumer attitudes, producers of food for special purposes, the consumers of which may be people with a high level of nutritional knowledge, might consider the appropriateness of health claims for these products on their packaging.

The performed study has some limitations that should be considered. The first one refers to the use of the subjective knowledge parameter instead of trying to verify the actual level of respondents' knowledge. In addition, the research was not based on actual products available on the market. Moreover, not all of the health issues have been investigated in depth, i.e., with regard to the possible effects of body mass index on health consciousness. In addition, no specific health claims have been analysed. Furthermore, we did not conduct the analysis related to different sociodemographic profiles or ethnic factors. Ultimately, the research was conducted on an individualistic society (USA), and furthermore, the data were not compared to other societies – especially collective ones. We believe that the above limitations may constitute scope for future analyses.

CONCLUSIONS

In our article, we have managed to characterize the factors influencing APA and have proved their influence on this variable. Moreover, we have determined 66.6% of the variance of the model. The main implications of the study refer to the fact that subjective norm appeared to be the most important determinant of intentions, where perceived behavioural control seemed to be insignificant. The results of the impact of this variable was the

opposite in some studies (Carfora et al., 2021). Therefore, we consider our research to have added value and to be a possible target for future, more detailed studies. In addition, attitude towards paying attention to health claims is highly impacted by trust and inversely influenced by subjective knowledge, which confirms the high importance of trustworthy messages contained in claims. Consequently, the message is put forward that claims may be incomprehensible to consumers. Additionally, the potential role of simplified claims or other methods that might replace health claims should be considered. One example of a simplified system is the nutri-score system, which has already been launched in the European Union.

REFERENCES

Aitken, R., Watkins, L., Williams, J., Kean, A. (2020). The positive role of labelling on consumers' perceived behavioural control and intention to purchase organic food. J. Clean. Prod., 255, 120334. https://doi.org/10.1016/j.jclepro.2020.120334

Ajzen, I. (1991). The theory of planned behavior. Org. Beh. Human Dec. Proc., 50(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Ajzen, I. (2015). Consumer attitudes and behavior: the theory of planned behavior applied to food consumption decisions. Consum. Attitud. Beh.: Theory Plan. Beh. Appl. Food Consump. Dec., 70(2), 121–138. https://doi.org/10.13128/REA-18003

Al-Swidi, A., Huque, S.M.R., Hafeez, M.H., Shariff, M.N.M. (2014). The role of subjective norms in theory of planned behavior in the context of organic food consumption. Brit. Food J., 116(10), 1561–1580. https://doi.org/10.1108/BFJ-05-2013-0105

Annunziata, A., Vecchio, R., Kraus, A. (2016). Factors affecting parents' choices of functional foods targeted for children Azzurra. Int. J. Consum. Stud., 40(5), 527–535. https://doi.org/10.1111/ijcs.12297

Bagozzi, R.P., Yi, Y. (2012). Specification, evaluation, and interpretation of structural equation models. J. Acad. Market. Sci., 40(1), 8–34. https://doi.org/10.1007/s11747-011-0278-x

Ballco, P., Gracia, A. (2020). An extended approach combining sensory and real choice experiments to examine new product attributes. Food Qual. Prefer., 80, 103830. https://doi.org/10.1016/j.foodqual.2019.103830

Benson, T., Lavelle, F., McCloat, A., Mooney, E., Bucher, T., Egan, B., Dean, M. (2019). Are the claims to blame? A qualitative study to understand the effects of nutrition and health claims on perceptions and consumption of food. Nutrients, 11(9), 2058. https://doi.org/10.3390/nu11092058

Bhutto, M.Y., Zeng, F., Soomro, Y.A., Khan, M.A. (2019). Young chinese consumer decision making in buying green products: An application of theory of planned behavior with gender and price transparency. Pak. J. Commer. Soc. Sci., 13(3), 599–619.

Bloomberg (2019). Dietary Supplements Market to Reach USD 216.3 Billion by 2026 | Reports And Data - Bloomberg. Www.Bloomberg.Com. https://www.bloomberg.com/press-releases/2019-12-04/dietary-supplements-market-to-reach-usd-216-3-billion-by-2026-reports-and-data

Carfora, V., Cavallo, C., Catellani, P., Giudice, T. Del, Cicia, G. (2021). Why do consumers intend to purchase natural food? Integrating theory of planned behavior, value-belief-norm theory, and trust. Nutrients, 13(6), 1904. https://doi.org/10.3390/nu13061904

Carrillo, E., Fiszman, S., Lähteenmäki, L., Varela, P. (2014). Consumers' perception of symbols and health claims as health-related label messages. A cross-cultural study. Food Research International, 62, 653–661. https://doi.org/10.1016/j.foodres.2014.04.028

Cavaliere, A., De Marchi, E., Banterle, A. (2016). Does consumer health-orientation affect the use of nutrition facts panel and claims? An empirical analysis in Italy. Food Qual. Pref., 54, 110–116. https://doi.org/10.1016/j.foodqual.2016.07.008

Chin, W.W. (1998). Issues and opinion on structural equation modeling. MIS Quarterly: Manag. Inf. Syst., 22(1), 7–16.

Contini, C., Boncinelli, F., Marone, E., Scozzafava, G., Casini, L. (2020). Drivers of plant-based convenience foods consumption: Results of a multicomponent extension of the theory of planned behaviour. Food Qual. Pref., 84, 103931. https://doi.org/10.1016/j.foodqual.2020.103931

De-Magistris, T. (2020). Nutrition, choice and health-related claims. Nutrients, 12(3), 650. https://doi.org/10.3390/nu12030650

Hair, J.F., Black, W., Bbin, B., Anderson, R. (2017). Multivariate Data Analysis (7th ed.). Pearson Education Limited.

Hair, J.F., Ringle, C.M., Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. J. Market. Theory Pract., 19(2), 139–152. https://doi.org/10.2753/MTP1069-6679190202

Han, H., Yu, J., Kim, W. (2019). An electric airplane: Assessing the effect of travelers' perceived risk, attitude, and new product knowledge. J. Air Transp. Manag., 78, 33–42. https://doi.org/10.1016/j.jairtraman.2019.04.004

Hansen, T., Sørensen, M.I., Eriksen, M.L.R. (2018). How the interplay between consumer motivations and values

influences organic food identity and behavior. Food Pol., 74, 39–52. https://doi.org/10.1016/j.foodpol.2017.11.003

Henseler, J., Ringle, C.M., Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. J. Acad. Market. Sci., 43(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

Hieke, S., Cascanette, T., Pravst, I., Kaur, A., Van Trijp, H., Verbeke, W., Grunert, K.G. (2016). The role of health-related claims and symbols in consumer behaviour: The CLYMBOL project. Agro Food Ind. Hi-Tech, 27(3), 26–29.

Hieke, S., Kuljanic, N., Wills, J.M., Pravst, I., Kaur, A., Raats, M.M., van Trijp, H.C.M., Verbeke, W., Grunert, K.G. (2015). The role of health-related claims and health-related symbols in consumer behaviour: Design and conceptual framework of the CLYMBOL project and initial results. Nutr. Bull., 40(1), 66–72. https://doi.org/10.1111/nbu.12128

Hill, C.R., Hughes, J.N. (2007). An examination of the convergent and discriminant validity of the Strengths and Difficulties Questionnaire. School Psych. Quart., 22(3), 380–406. https://doi.org/10.1037/1045-3830.22.3.380

Hoppert, K., Mai, R., Zahn, S., Schwarz, P.E.H., Hoffmann, S., Rohm, H. (2014). Is there a fit in cognitive and sensory evaluation of yogurt? The moderating role of nutrition training. Food Qual. Pref., 31(1), 65–68. https://doi.org/10.1016/j.foodqual.2013.08.001

Hung, Y., Verbeke, W. (2019). Consumer evaluation, use and health relevance of health claims in the European Union. Food Qual. Pref., 74, 88–99. https://doi.org/10.1016/j.foodqual.2019.01.002

Jo, J., Lusk, J.L. (2018). If it's healthy, it's tasty and expensive: Effects of nutritional labels on price and taste expectations. Food Qual. Pref., 68, 332–341. https://doi.org/10.1016/j.foodqual.2018.04.002

Kaur, A., Scarborough, P., Rayner, M. (2017). A systematic review, and meta-analyses, of the impact of health-related claims on dietary choices. Int. J. Beh. Nutr. Physic. Act., 14, 93. https://doi.org/10.1186/s12966-017-0548-1

Kim, J.J., Hwang, J. (2020). Merging the norm activation model and the theory of planned behavior in the context of drone food delivery services: Does the level of product knowledge really matter? J. Hospit. Tour. Manag., 42, 1–11. https://doi.org/10.1016/j.jhtm.2019.11.002

Klopčič, M., Slokan, P., Erjavec, K. (2020). Consumer preference for nutrition and health claims: A multi-methodological approach. Food Qual. Pref., 82, 103863. https://doi.org/10.1016/j.foodqual.2019.103863

Konuk, F.A. (2019). Consumers' willingness to buy and willingness to pay for fair trade food: The influence of consciousness for fair consumption, environmental concern,

trust and innovativeness. Food Res. Int., 120, 141–147. https://doi.org/10.1016/j.foodres.2019.02.018

Kozup, J.C., Creyer, E.H., Burton, S. (2003). Making healthful food choices: The influence of health claims and nutrition information on consumers' evaluations of packaged food products and restaurant menu items. J. Market., 67(2), 19–34. https://doi.org/10.1509/jmkg.67.2.19.18608

Lähteenmäki, L. (2013). Claiming health in food products. Food Qual. Pref., 27(2), 196–201. https://doi.org/10.1016/j.foodqual.2012.03.006

Marsh, H.W., Hocevar, D. (1985). Application of Confirmatory Factor Analysis to the Study of Self-Concept. First- and Higher Order Factor Models and Their Invariance Across Groups. Psych. Bull., 97(3), 562–582. https://doi.org/10.1037/0033-2909.97.3.562

Michaelidou, N., Hassan, L.M. (2008). The role of health consciousness, food safety concern and ethical identity on attitudes and intentions towards organic food. Int. J. Cons. Stud., 32(2), 163–170. https://doi.org/10.1111/j.1470-6431.2007.00619.x

Montagnese, C., Santarpia, L., Iavarone, F., Strangio, F., Sangiovanni, B., Buonifacio, M., Caldara, A.R., Silvestri, E., Contaldo, F., Pasanisi, F. (2019). Food-Based dietary guidelines around the World: Eastern Mediterranean and Middle Eastern Countries. Nutrients, 11(6), 1325. https://doi.org/10.3390/nu11061325

Paul, J., Modi, A., Patel, J. (2016). Predicting green product consumption using theory of planned behavior and reasoned action. J. Retail. Cons. Serv., 29, 123–134. https://doi.org/10.1016/j.jretconser.2015.11.006

Pereira, R.C., de Angelis-Pereira, M.C., Carneiro, J. de D.S. (2019). Exploring claims and marketing techniques in Brazilian food labels. Brit. Food J., 121(7), 1550–1564. https://doi.org/10.1108/BFJ-08-2018-0516

Piha, S., Pohjanheimo, T., Lähteenmäki-Uutela, A., Křečková, Z., Otterbring, T. (2018). The effects of consumer knowledge on the willingness to buy insect food: An exploratory cross-regional study in Northern and Central Europe. Food Qual. Pref., 70, 1–10. https://doi.org/10.1016/j.foodqual.2016.12.006

Pino, G., Peluso, A.M., Guido, G. (2012). Determinants of Regular and Occasional Consumers' Intentions to Buy Organic Food. J. Cons. Aff., 46(1), 157–169. https://doi.org/10.1111/j.1745-6606.2012.01223.x

Pravst, I., Kušar, A., Žmitek, K., Miklavec, K., Lavriša, Ž., Lähteenmäki, L., Kulikovskaja, V., Malcolm, R.N., Hodgkins, C., Raats, M.M. (2018). Recommendations for successful substantiation of new health claims in the European Union. Trends Food Sci. Technol., 71, 259–263. https://doi.org/10.1016/j.tifs.2017.10.015

Revelle, W. (2013). psych: Procedures for Psychological, Psychometrical and Personality Research (Issue Rapackage verions 1.0-95, pp. 1–387). https://www.researchgate.net/publication/281345624_psych_Procedures_for_Psychological_Psychometric_and_Personality_Research_R_Package_Version_10-95

Rosseel, Y. (2012). lavaan: An R Package for Structural Equation Modeling. J. Stat. Soft., 48(2), 1–36. https://doi.org/10.18637/jss.v048.i02

Schumacker, R.E., Lomax, R.G. (2017). A Beginner's Guide to Structural Equation Modeling (3rd ed.). Routledge.

Setiawati, H., Hartoyo, H., Simanjuntak, M. (2018). Analysis on Intention of Purchasing Organic Foods by The Undergraduate Students of IPB Using The Theory of Planned Behavior Approach. J. Manaj. Agribis., 15(2), 198–207. https://doi.org/10.17358/jma.15.2.198

Shaw, D., Shiu, E. (2002). The role of ethical obligation and self-identity in ethical consumer choice. Int. J. Consum. Stud., 26(2), 109–116. https://doi.org/10.1046/j.1470-6431.2002.00214.x

Shin, J., Mattila, A.S. (2019). When organic food choices shape subsequent food choices: The interplay of gender and health consciousness. Int. J. Hospit. Manag., 76, 94–101. https://doi.org/10.1016/j.ijhm.2018.04.008

Spence, M., Stancu, V., Elliott, C.T., Dean, M. (2018). Exploring consumer purchase intentions towards traceable minced beef and beef steak using the theory of planned behavior. Food Control, 91, 138–147. https://doi.org/10.1016/j.foodcont.2018.03.035

Sreen, N., Purbey, S., Sadarangani, P. (2018). Impact of culture, behavior and gender on green purchase intention. J. Retail. Consum. Serv., 41, 177–189. https://doi.org/10.1016/j.jretconser.2017.12.002

Steinhauser, J., Hamm, U. (2018). Consumer and product-specific characteristics influencing the effect of nutrition, health and risk reduction claims on preferences and purchase behavior – A systematic review. Appetite, 127, 303–323. https://doi.org/10.1016/j.appet.2018.05.012

Sultan, P., Tarafder, T., Pearson, D., Henryks, J. (2020). Intention-behaviour gap and perceived behavioural control-behaviour gap in theory of planned behaviour: moderating roles of communication, satisfaction and trust in organic food consumption. Food Qual. Pref., 81, 103838. https://doi.org/10.1016/j.foodqual.2019.103838

Talati, Z., Norman, R., Kelly, B., Dixon, H., Neal, B., Miller, C., Pettigrew, S. (2018). A randomized trial assessing the effects of health claims on choice of foods in the presence of front-of-pack labels. Am. J. Clin. Nutr., 108(6), 1275–1282. https://doi.org/10.1093/ajcn/nqy248

Talwar, S., Jabeen, F., Tandon, A., Sakashita, M., Dhir, A. (2021). What drives willingness to purchase and stated buying behavior toward organic food? A Stimulus–Organism–Behavior–Consequence (SOBC) perspective. J. Clean. Prod., 293, 125882. https://doi.org/10.1016/j.jclepro.2021.125882

Tudoran, A., Olsen, S.O., Dopico, D.C. (2009). The effect of health benefit information on consumers health value, attitudes and intentions. Appetite, 52(3), 568–579. https://doi.org/10.1016/j.appet.2009.01.009

Tugault-Lafleur, C.N., Black, J.L. (2019). Differences in the quantity and types of foods and beverages consumed by Canadians between 2004 and 2015. Nutrients, 11(3), 526. https://doi.org/10.3390/nu11030526

US FDA (U.S. Food & Drug Administration). (2021). Label Claims for Conventional Foods and Dietary Supplements | FDA. https://www.fda.gov/food/food-labeling-nutrition/label-claims-conventional-foods-and-dietary-supplements

Yadav, R., Pathak, G.S. (2016). Young consumers' intention towards buying green products in a developing nation: Extending the theory of planned behavior. J. Clean. Prod., 135, 732–739. https://doi.org/10.1016/j.jclepro.2016.06.120

Yazdanpanah, M., Forouzani, M. (2015). Application of the Theory of Planned Behaviour to predict Iranian students' intention to purchase organic food. J. Clean. Prod., 107, 342–352. https://doi.org/10.1016/j.jclepro.2015.02.071