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EDITED BY
Reza Rastmanesh,
American Physical Society,
United States

REVIEWED BY
Mohd Sadiq,
University of Otago, New Zealand
Amar Razzaq,
Huanggang Normal University, China

*CORRESPONDENCE
Joonho Moon
joonhomoon0412@gmail.com

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Antecedents and consequences of healthiness in café service: Moderating effect of health concern

Myungkeun Song[1], Won Seok Lee[2] and Joonho Moon[3]*

[1]Department of Tourism Management, Dong-A University, Busan, South Korea, [2]Department of Tourism and Recreation, Kyonggi University, Suwon, South Korea, [3]Department of Tourism Administration, Kangwon National University, Chuncheon, South Korea

This study aims to examine the antecedents of consequences of healthiness in the café business context. Additionally, this study attests to the moderating effect of one's concern for health (health concern) between healthiness and attitude. To attain a more vivid response, this research selected Starbucks coffeehouse as a case study. Hygiene, healthiness, and nutritional disclosure are the determinants of healthiness in the café business area. The consequences of healthiness are attitude and purchase intention for café products. Health concern is the moderating variable between healthiness and attitude in the context of café businesses. In order to test the association between attributes, a survey was used. Amazon Mechanical Turk was chosen to recruit survey participants. The valid observation for data analysis was 455 participants. For hypothesis testing, a structural equation model was implemented. Regarding the results, health concern is positively influenced by hygiene and organicness, but healthiness is negatively affected by nutritional disclosure. Moreover, it was found that health concern significantly moderates the relationship between healthiness and attitude, and attitude exerts a positive effect on purchase intention.

KEYWORDS

healthiness, hygiene, organic, nutrition disclosure, health concern, attitude, purchase intention

Introduction

People are more interested in their health condition because a healthy condition is indispensable for better living with an improved standard of living (Kim et al., 2013; Huang and Lu, 2016; Yoo et al., 2020). Hence, consumers are more interested in healthy products; the café business is not free from this trend. To be specific, the café business allocates its resources to develop a healthy menu by including items such as whole grain bread, organic ingredient sandwiches, decaffeinated coffee, low-fat and low-sugar options, and size choice options (Eat This Not That, 2018; Today, 2020). Such a market trend inspires this research to understand healthiness more from the perspective of consumers. Thus, this research examined the antecedents and consequences of healthiness in the coffee business domain.

As the determinants of healthiness, this study selected hygiene, organicness, and nutritional disclosure. Previous studies addressed that hygiene is indispensable for healthy food because unsanitary conditions contaminate food, which causes disease (Seaman, 2010; Ababio and Lovatt, 2015; Fleetwood, 2019). The second element is organicness, which is associated with non-genetically modified organisms (Non-GMOs), ecofriendly cultivation, and the use of chemical-free fertilizers and pesticides (Davies et al., 1995; Padel and Foster, 2005; Britwum et al., 2021). Prior research also indicates that consumers choose organic food because it can promote health and avoid harmful components. The last determinant of healthiness is nutritional disclosure (de Magistris and Gracia, 2008; Lairon, 2010; Watanabe and Barbirato, 2021). Café food usually contains unhealthy elements such as high calorie content and caffeine (Schubert et al., 2017; Young et al., 2020; Gallivan and Brannon, 2022). Information on unhealthy ingredients such as high sugar levels and high fat levels encourages people to avoid harmful food; therefore, researchers emphasize the disclosure of nutritional information to enable consumers' decision-making (Fernandes et al., 2015; Huang and Lu, 2016; Wang et al., 2016). Thus, information is likely to exert a negative influence on the food healthiness of a coffee shop, which potentially affects the perceived healthiness of café food.

The consequences of healthiness are attitude and purchase intention. Attitude has been studied by numerous researchers because it is an indicator of how consumers feel and evaluate certain products and services (Das, 2014; Hung et al., 2016; Rana and Paul, 2017; Ahmadova and Aliyev, 2021). Moreover, several studies addressed the idea that purchase intention is an attribute directly connected with the revenue of a business, so consumers' higher level of purchase intention enables businesses to attain more earnings (Bian and Forsythe, 2012; Sreen et al., 2018; Kim and Song, 2020). Indeed, numerous studies have adopted purchase intention as the dependent variable (Lusk et al., 2007; Paul and Bhakar, 2018; Lee, 2019; Tran, 2020). Abundance, attitude, and purchase intention are employed in this research.

The next main attribute of this study is to attest to the moderating effect of health concerns between healthiness and attitude. Prior studies have outlined that food consumption patterns appear differently depending on the degree of health concern (Chen, 2011; Singhal, 2017). Therefore, healthy food is likely to be more attractive to highly health-conscious consumers, and such speculation could be applied in and attested to the domain of a café business. Furthermore, extant literature in the café consumer behavior area has rarely researched the moderating effect of health concerns, although many studies have been implemented to understand coffee shop consumer behavior (Thompson and Arsel, 2004; Jang et al., 2015; Kim et al., 2018; Jang and Lee, 2019; Shim et al., 2021). Such a point could be regarded as a research gap. Additionally, it is worth scrutinizing the effect on health concerns because there is a controversy about whether café food can promote a healthy condition or not (Schwarz et al., 1994; Nieber, 2017; Samoggia and Riedel, 2019). By demonstrating the moderating effect of health concerns, this research attempts to reduce the research gap.

This research theoretically contributes to literature on this subject by exposing the association between attributes: hygiene, organicness, nutritional disclosure, healthiness, health concern, attitude, and purchase intention. Ultimately, the outcome of this research might be utilized to increase the earnings of café businesses.

Review of literature

Healthiness and determinants of food healthiness

Food healthiness is an individual's appraisal of the nutritional value of food and its contribution to the individual's health (Provencher et al., 2009; Huang and Lu, 2016). Chan and Zhang (2022) outline that food healthiness is varied depending on the context and food healthiness in varied domains requires further research. Consumers concerned with their health are driving market demand for healthier food options. (Kim et al., 2013; Yoo et al., 2020). Such a demand has led researchers to scrutinize consumer behavior patterns for food health choices. Given this notability, previous studies have discussed the influential attributes of healthiness (Rizk and Treat, 2014; Fernandes et al., 2015).

Scholars have outlined that healthiness could be influenced by various attributes. First, prior studies argue that hygiene determines food healthiness because food prepared with poor sanitation causes disease on consumption (Seaman and Eves, 2006; Seaman, 2010; Ababio and Lovatt, 2015). Okpala and Korzeniowska (2021) also argue that food hygiene is an avenue for the provision of safe food. To be specific, Martins et al. (2012) claimed that foodborne illness causes serious health problems. Fleetwood (2019) also noted that restaurant hygiene inspections negatively impact public health problems. Djekic et al. (2014) documented that transparent food hygiene processes play a significant role in improving business conditions because consumers assess that the food is less detrimental to their health. This implies that hygiene is significantly related to health.

Next, extant literature has documented that organic produce is the second antecedent of healthiness because it is pure, safe, and beneficial for better health conditions (de Magistris and Gracia, 2008; Lairon, 2010; Watanabe and Barbirato, 2021). For instance, Padel and Foster (2005) outline that organic food is regarded as healthy because it is naturally produced and free from pesticides and fertilizer. de Magistris and Gracia (2008) unveiled that individuals pursuing a healthy diet consume more organic food because they believe that it is imperative for promoting positive health conditions. Moreover, Yu and

Friedhelm (2018) contend that consumers perceive organic food as healthier because it contains less harmful items. Eyinade et al. (2021) allege that consumers value organic food more because it promotes a positive individual health condition.

Nutritional disclosure is the third determinant of healthiness. Nutritional disclosure refers to offering food ingredients, nutrition, and producer information to consumers (Huang and Lu, 2016; Adams, 2019; Razzaq et al., 2021). Razzaq et al. (2021) claimed that nutritional disclosure is a critical aspect of the food business because offering food information enables consumers to make better choices. Huang and Lu (2016) demonstrated that nutrition labels significantly affect food healthiness in the area of food packaging businesses. Fernandes et al. (2015) found that food healthiness is significantly determined by nutritional disclosure such as calorie information and menu labeling. Ogundijo et al. (2021) researched the retail market and found that nutritional labeling crucially functioned to build the perception of healthiness. Similarly, Wang et al. (2016) displayed the noteworthy relationship between nutritional disclosure and healthiness by employing snack consumers. Adams (2019) asserted that nutritional disclosure plays a crucial role in consumer decision-making because consumers acquire more information. In a similar vein, Chen et al. (2021) alluded that nutritional disclosure helps consumers reject unattractive food. Café food is characterized by high sugar level, caffeine, and high calories because most café foods are desserts, which is often extra calories after a regular meal (Chan et al., 2009; Morean and Wedel, 2017; Reyes and Cornelis, 2018; Bergeron et al., 2019). Therefore, the nutritional information of café products is likely to contain negative nutrition information such as sugar level, caffeine, and calories, which results in a negative perception of food healthiness. Based on the literature review, this study proposes the following research hypotheses:

H1: Hygiene Exerts a Positive Effect on Healthiness.
H2: Organicness exerts a positive effect on healthiness.
H3: Nutritional disclosure exerts a negative effect on healthiness.

Attitude

Attitude is a sort of consistent preference toward an object (Litvin and MacLaurin, 2001; Wu and Wang, 2014; Lee, 2019). Attitude is established by experience, cognition, assessment, and emotion (Voss et al., 2003; Abzari et al., 2014; Das, 2014; Kwon et al., 2020). In the food service business area, consuming healthy food has become more crucial because personal health condition is influenced by food consumption (Kwun, 2011; Gundersen and Ziliak, 2015; Hsu et al., 2016). Conversely, some studies suggest that unhealthy food causes undesirable results such as depression, high blood pressure, obesity, and heart attack (Hsu et al., 2016; Sezgin and Sanlier, 2016). Hence, food healthiness is an essential element to build a positive attitude. Previous studies exhibited empirical evidence. As an example, Hung et al. (2016) uncovered that meat healthiness significantly affects consumer attitude. Rana and Paul (2017) explored literature and found that food healthiness exerts an effect on attitude. Basha et al. (2015) studied organic food consumers and demonstrated a positive impact of food healthiness on attitude. Ahmadova and Aliyev (2021) found a positive association between food healthiness and attitude by exploring Halal food consumers. Given the review of literature, this research thus presents the following hypothesis:

H4: Healthiness exerts a positive effect on attitude.

Health concerns and the moderating effect

Scholars stated that health concern is an individual's degree of caring about their health condition (Röhr et al., 2005; Sun, 2008). People with a high level of health concerns are very thoughtful when they consume a health-related product (Wandel, 1994; Apaolaza et al., 2018). Food also is influential on health conditions, and health-concerned consumers are more careful in their purchasing decisions (Kähkönen and Tuorila, 1999; Pohjanheimo and Sandell, 2009; Farsalinos et al., 2015). De Canio and Martinelli (2021) also contended that health concern is a central attribute in food marketing because food consumption is linked with consumers' healthier lifestyles. The healthiness of products is more convincing to the health-concerned consumers because they value it more for enhancing their health condition. If high health-conscious people assess a product as promoting health conditions, they are more likely to report a positive evaluation of the product. Namely, the magnitude of the healthiness effect is likely to become greater for highly health-conscious consumers. It also can be inferred that the healthiness of a product can affect variedly depending on the degree of health concern. Indeed, Chen (2011) employed health concerns as a moderator in food purchase decision-making research. Singhal (2017) also demonstrated the moderating effect of health concerns by studying organic food consumers. Ahadzadeh et al. (2018) also disclosed the moderating effect of health concerns for seeking food information using an artificial intelligence system. However, sparse studies about the moderating effect of health concerns have been implemented in the domain of café customers. To affiliate such a research void, the following research hypothesis is proposed:

H5: Health concern significantly moderates the relationship between healthiness and attitude.

Purchase intention

Purchase intention refers to consumers' evaluation of whether they spend money or not; the intention leads to more

buying decisions (Chang and Wildt, 1994; Chu and Lu, 2007; Liao et al., 2019). Prior studies also contended that businesses can increase their sales volume based on purchase intentions (Lusk et al., 2007; Bian and Forsythe, 2012; Kim and Song, 2020). This has encouraged many researchers to inspect purchase intention. For instance, Sreen et al. (2018) researched the determinants of green product purchase intention. Filieri et al. (2018) similarly implemented research for online consumers using purchase intention as an explanatory attribute. Ghali-Zinoubi and Toukabri (2019) employed purchase intention as a dependent variable to understand consumer purchase intentions in the organic product market. Along a similar vein, Tran (2020) documented the effect of online reviews on purchase intention in the context of tourism marketing. Robichaud and Yu (2022) revealed the determinants of purchase intention in the domain of coffee businesses. Browsing prior studies, many researchers adopted purchase intention as an explanatory element. It can be inferred that purchase intention is worth exploring. Therefore, this study selects purchase intention as the outcome variable.

Empirical studies revealed a positive association between attitude and purchase intention. Das (2014) showed the positive effect of attitude on purchase intention. Hartmann and Apaolaza-Ibáñez (2012) found the positive effect of attitude on purchase intention by studying eco-friendly product consumers. Abzari et al. (2014) found that attitude exerts a positive impact on purchase intention in the social marketing area. Jung and Seock (2016) revealed that apparel consumers' attitude positively affects purchase intention. Similarly, Paul and Bhakar (2018) uncovered that purchase intention is positively influenced by the attitude in the domain of celebrity marketing. Additionally, Lee (2019) demonstrated the positive impact of attitude on purchase intention using commercial sharing system consumers. Given the review of research, this study proposes the following research hypothesis:

H6: Attitude exerts a positive effect on purchase intention.

Methods

Research model and data collection

Figure 1 describes the research model. Healthiness is determined by hygiene, organicness, and nutritional disclosure. Healthiness positively affects attitude; the association between healthiness and attitude is moderated by health concerns. Last, purchase intention is positively influenced by attitude.

Amazon Mechanical Turk (http://www.mturk.com) was the main tool for collecting data. Amazon Mechanical Turk is an instrument for online data collection, and the system enables researchers to attract survey participants by offering monetary compensation. Since the system is an American-based survey system, this could become a proper system for attaining American-based survey information. Many prior studies collected data using Amazon Mechanical Turk and reported significant statistical inference (Wong et al., 2014; Lee and Hyun, 2018; Lee et al., 2018; Bahja and Hancer, 2021). The data collection period was from 11 December 2021 to 15 December 2021. This study chose Starbucks as a subject because the coffee shop business is well-known to the public; it allows this researcher to collect the data more easily. The popularity of the business could help this research attain generalizability. Additionally, Starbucks actively has executed a healthiness-related marketing strategy about hygiene management and offers organic ingredients for food; some examples include an open kitchen, sanitation guidelines, vegetable sandwiches, decaffeinated coffee, and reduced-fat menu items (Eat This Not That, 2018; Starbucks, 2021b). Moreover, nutritional disclosure has been implemented at Starbucks to offer information and protect consumer health (Starbucks, 2021a). By integrating the abovementioned aspects, Starbucks is regarded as an appropriate subject for current research. Thus, the survey participants were familiar with Starbucks coffee products and services. This research aimed to collect data from US consumers because Starbucks is a representative American café brand, and most survey participants of Amazon Mechanical Turk are based in the US (Burnham et al., 2018; Struckman-Johnson et al., 2020; Starbucks, 2021b). The survey was implemented nationally without focusing on any certain state of the US because this could enhance the generalizability of the research outcome. At the beginning of the survey, this study requested participants to "Please answer the survey questions based on your Starbucks experience." Initially, 460 observations were attained, and five observations were eliminated because of either too many missing values or only one-word answers. In consequence, data analysis was implemented using 455 observations (valid sampling rate: 98.91 percent).

Measurement and data analysis

Table 1 illustrates the construct and measurement items. All constructs are composed of four items. All the measurement items were referenced by previous studies and adjusted for research. This research adopts seven constructs, namely healthiness, hygiene, organicness, nutritional disclosure, health concern, attitude, and purchase intention. The definition of healthiness is how the café product is assessed to enhance one's health condition (Basha et al., 2015; Huang and Lu, 2016; Ahmadova and Aliyev, 2021). Hygiene is defined as the evaluation of the cleanliness of the café (Chow and Mullan, 2010; Mullan and Wong, 2010; Läikkö-Roto and Nevas, 2014). Organicness in this study stands for the degree to which consumers perceive the café product is dependent on organic ingredients (Paul and Rana, 2012; Teng and Lu, 2016; Asif et al., 2018). This research defines nutritional disclosure as how

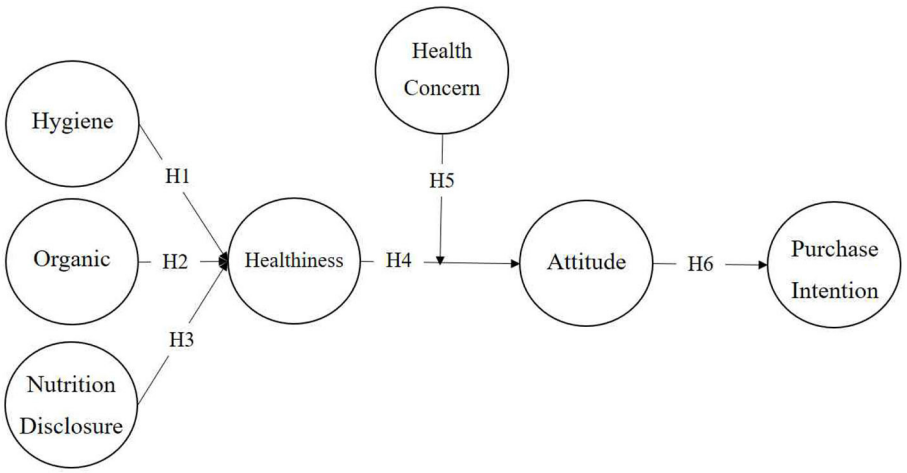

FIGURE 1
Research model.

TABLE 1 Construct depiction.

Construct	Code	Item	Reference
Healthiness	H1	Starbucks food and beverage are healthy.	Basha et al., 2015
	H2	Starbucks food improves my health condition.	Huang and Lu, 2016
	H3	Starbucks provides me with healthy food and beverage.	Ahmadova and Aliyev, 2021
	H4	My health condition is promoted by Starbucks food and beverage.	
Hygiene	HY1	Starbucks products are hygienic.	Chow and Mullan, 2010
	HY2	Starbucks products are cooked in clean conditions.	Mullan and Wong, 2010
	HY3	Cleanliness of Starbucks products is well managed.	Läikkö-Roto and Nevas, 2014
	HY4	Starbucks food and beverage are sanitary to consume.	
Organic	OR1	Starbucks food and beverage are organic.	Paul and Rana, 2012
	OR2	Starbucks offers organic products.	Teng and Lu, 2016
	OR3	Starbucks products provide organic ingredients.	Asif et al., 2018
	OR4	Starbucks sells organic food.	
Nutrition disclosure	ND1	Starbucks reveals nutrition information about the product.	Choi, 2015
	ND2	Starbucks discloses the nutrition information of the product.	Huang and Lu, 2016
	ND3	Starbucks informs nutrition contents of food and beverage.	Wang et al., 2016
	ND4	Starbucks provides calorie information on food and beverages.	
Health concern	HC1	I am concerned about my health condition	Chen, 2011
	HC2	I am concerned about gaining weight.	Farsalinos et al., 2015
	HC3	I am concerned about the diet.	Singhal, 2017
	HC4	I am concerned about sugar, additive, and cholesterol in food.	
Attitude	AT1	For me, using Starbucks is bad or good.	Das, 2014; Wu and Wang, 2014;
	AT2	For me, using Starbucks is unfavorable or favorable.	Lee, 2019; Kwon et al., 2020
	AT3	For me, using Starbucks is negative or positive.	
	AT4	For me, using Starbucks is stupid or wise.	
Purchase intention	PI1	I intend to buy Starbucks product	Lusk et al., 2007
	PI2	I am willing to purchase Starbucks food and beverage.	Bian and Forsythe, 2012
	PI3	I am going to purchase Starbucks products.	Liao et al., 2019
	PI4	I will pay for Starbucks food and beverage.	Kim and Song, 2020

well the coffee shop menus offer nutritional information (Choi, 2015; Huang and Lu, 2016; Wang et al., 2016). Health concern in this study refers to how an individual takes care of their health condition (Chen, 2011; Farsalinos et al., 2015; Singhal, 2017). Attitude is defined as the overall impression of the café (Das, 2014; Wu and Wang, 2014; Lee, 2019; Kwon et al., 2020), and purchase intention denotes if consumers intend to buy the product and service of the café (Lusk et al., 2007; Bian and Forsythe, 2012; Liao et al., 2019; Kim and Song, 2020).

This research first carried out a frequency analysis to acquire demographic information from survey respondents. Confirmatory factor analysis and correlation matrix were performed for ensuring convergent and discriminant validity. Factor loadings (threshold: 0.5) and construct reliability (threshold: 0.7) were applied to appraise convergent validity (Hoyle, 1995; Hair et al., 2010). Researchers documented that, if the square root of the average variance extracted is greater than the correlation coefficient, discriminant validity could be ensured (Fornell and Larcker, 1981; Hoyle, 1995; Hair et al., 2010). For hypothesis testing, this study utilized a structural equation model. Structural equation modeling refers to a multivariate technique to assess the multivariate causal relationship (Hair et al., 2010); the instrument has been widely used in various studies (Kim et al., 2021; Wong et al., 2021; Ahmad et al., 2022). This study also tested the significance of the coefficient using a p-value of 0.05 as the criterion (Hair et al., 2010). Extant literature stated that the goodness of fit is attested by checking the following: Q (CMIN/degree of freedom) < 3; RMR (root mean square residual), GFI (goodness of fit index), NFI (normed fit index), RFI (relative fit index), IFI (incremental fit index), TLI (Tucker-Lewis index), CFI (comparative fit index) >0.8, and RMSEA (root mean square error of approximation) <0.05 (Fornell and Larcker, 1981; Hoyle, 1995; Hair et al., 2010). To test the moderating effect of health concern, the high health concern group ($N = 271$) and the low health concern group ($N = 184$) were separated at first. Then, both models' χ^2 values (baseline model vs. nested model) were computed to check the significance model. Afterward, both χ^2 values were compared using $\Delta\chi^2$ statistics to check whether both coefficients are significantly different or not; the moderating effect is appraised given the significance of $\Delta\chi^2$ [H_0: no moderating effect ($\Delta\chi^2 = 0$), H_a = moderating effect ($\Delta\chi^2 \neq 0$)] (Steenkamp and Baumgartner, 1998; Hsiao and Lai, 2018).

Results

Demographic information

Table 2 shows the demographic information of survey respondents. Of the total survey respondents. 221 and 234 are men and women, respectively. Monthly household income (Under $2,000: 120, $2,000–3,999: 114, $4,000–5,999: 82, $6,000–7,999: 59, $8,000–9,999:29, and Over $10,000: 51) and age (20s or younger: 126, 30s: 200, 40s: 68, 50s: 33, and older than 60: 28) information is presented in Table 1. Regarding café weekly visiting frequency, 84% of the participants visited less than one time or about 1–3 times.

TABLE 2 Demographic profile of survey participants ($N = 455$).

Item	Frequency	Percent
Gender		48.6
Male	221	
Female	234	51.4
Monthly household income		
Under $2,000	120	26.4
$2,000–3,999	114	25.1
$4,000–5,999	82	18.0
$6,000–7,999	59	13.0
$8,000–9,999	29	6.4
Over $10,000	51	11.2
Age		
20s or younger	126	27.7
30s	200	44.0
40s	68	14.9
50s	33	7.3
Older than 60	28	6.2
Cafe weekly visiting frequency		
Less than 1 time	216	47.5
1–3 times	166	36.5
3–5 times	56	12.3
More than 5 times	17	3.7
Total	455	100.0

Confirmatory factor analysis results and descriptive statistics of measurement items

Table 3 reveals the results of the confirmatory factor analysis. Factor loadings are significant given the p-value, and all the values are greater than the cutoff value. Construct reliability values are also >0.7. Given the results, the validity and reliability of measurement items are statistically acceptable. The goodness of fit indices also suggests that the results of confirmatory factor analysis are appropriate. All things considered, the convergent validity of measurement items are confirmed. Table 3 additionally provides mean and standard deviation values. Considering mean values, the mean values of hygiene are highest (range: 3.92–4.11), whereas the mean values of healthiness are lowest (range: 2.79-3.14). The goodness of fit indices showed that the results of confirmatory factor analysis are suitable

TABLE 3 Mean value and confirmatory factor analysis results.

Construct (AVE)	Code	Mean(SD)	Loading	t-value	Construct reliability (CR)
Healthiness (0.784)	H1	3.19(1.18)	0.900		0.935
	H2	2.88(1.26)	0.908	29.980*	
	H3	3.14(1.19)	0.886	28.303*	
	H4	2.79(1.30)	0.846	25.560*	
Hygiene (0.591)	HY1	3.92(0.97)	0.715		0.852
	HY2	4.06(0.84)	0.799	15.652*	
	HY3	4.04(0.85)	0.783	15.372*	
	HY4	4.11(0.88)	0.776	15.242*	
Organicness (0.699)	OR1	3.12(1.15)	0.771		0.902
	OR2	3.44(1.06)	0.873	19.928*	
	OR3	3.43(1.05)	0.868	19.790*	
	OR4	3.35(1.06)	0.827	18.719*	
Nutritional disclosure (0.665)	ND1	3.89(0.95)	0.862		0.888
	ND2	3.81(1.01)	0.770	19.191*	
	ND3	3.86(0.95)	0.846	22.028*	
	ND4	3.98(0.96)	0.780	19.571*	
Health concern (0.602)	HC1	3.75(1.21)	0.746		
	HC2	3.62(1.32)	0.770	15.788*	
	HC3	3.66(1.25)	0.875	17.350*	0.857
	HC4	3.78(1.16)	0.701	14.351*	
Attitude (0.785)	AT1	3.77(1.11)	0.907		0.936
	AT2	3.77(1.15)	0.909	31.231*	
	AT3	3.80(1.13)	0.911	31.485*	
	AT4	3.53(1.09)	0.814	24.222*	
Purchase intention (0.807)	PI1	3.81(1.17)	0.890		0.857
	PI2	3.87(1.12)	0.899	28.972*	
	PI3	3.81(1.16)	0.918	30.530*	
	PI4	3.90(1.16)	0.887	28.098*	

AVE stands for average variance extracted, $^{*}p < 0.05$.
Goodness of fit indices: Goodness of fit indices: $\chi^2 = 713.819$ df = 329 Q(χ^2/df) = 2.170 RMR = 0.051 GFI = 0.898 NFI = 0.934 RFI = 0.924 IFI = 0.963 TLI = 0.957 CFI = 0.963 RMSEA = 0.051.

($\chi^2 = 713.819$ df = 329 Q(χ^2/df) = 2.170 RMR = 0.051 GFI = 0.898 NFI = 0.934 RFI = 0.924 IFI = 0.963 TLI = 0.957 CFI = 0.963 RMSEA = 0.051).

Correlation matrix and discriminant validity

Table 4 is the results of the correlation matrix. The diagonal values are the square root of AVE. All the diagonal values are greater than the correlation coefficients in its column. It means that the discriminant validity is ensured by the results of the analysis. Healthiness positively correlates with hygiene (r = 0.413, $p < 0.05$), organicness (r = 0.689, $p < 0.05$), nutritional disclosure (r = 0.303, $p < 0.05$), attitude (r = 0.660, $p < 0.05$), and purchase intention (r = 0.550, $p < 0.05$). Attitude also positively correlates with hygiene (r = 0.629, $p < 0.05$), organicness (r = 0.476, $p < 0.05$), and nutritional disclosure (r = 0.423, $p < 0.05$). Next, purchase intention positively correlates with hygiene (r = 0.645, $p < 0.05$), organicness (r = 0.417, $p < 0.05$), nutritional disclosure (r = 0.499, $p < 0.05$), and attitude (r = 890, $p < 0.05$).

Results of structural equation model

Table 5 depicts the results of the structural equation model. Given the goodness of fit indices, the results are statistically significant ($\chi^2 = 707.535$ df = 244 Q(χ^2/df) = 2.900 RMR = 0.119 GFI = 0.881 NFI = 0.928 RFI = 0.887 IFI = 0.951 TLI = 0.935 CFI = 0.941 RMSEA = 0.050). The results revealed that the healthiness of a café is positively determined

TABLE 4 Correlation matrix results.

Variable	1	2	3	4	5	6	7
1. Hygiene	0.769						
2. Organicness	0.473*	0.836					
3. Nutritional disclosure	0.666*	0.468*	0.815				
4. Healthiness	0.413*	0.689*	0.303*	0.885			
5. Attitude	0.629*	0.476*	0.423*	0.660*	0.886		
6. Purchase intention	0.645*	0.417*	0.499*	0.550*	0.890*	0.898	
7. Health concerns	0.187*	0.182*	0.203*	0.219*	0.071	0.063	0.776

Diagonal is the square root of average variance extracted (AVE), $p < 0.05$.

TABLE 5 Results of hypothesis testing.

H	Path	Standardized β	t-value	p-value	Results
H1	Hygiene → Healthiness	0.222	3.63	0.000	Supported
H2	Organicness → Healthiness	0.645	11.88	0.000	Supported
H3	Nutritional disclosure → Healthiness	−0.129	−2.18	0.029	Supported
H4	Healthiness → Attitude	0.663	15.36	0.000	Supported
H5	Healthiness (H) → Attitude	0.734	21.24	0.000	Supported
	Healthiness (L) → Attitude	0.463	6.01	0.000	
H6	Attitude → Purchase intention	0.888	23.52	0.000	Supported

*$p < 0.05$, High health concern group (H) (N = 271), Low health concern group (L) (N = 184).
Goodness of fit indices for the structural model.
$\chi^2 = 707.535$ df = 244 $Q(\chi^2/df) = 2.900$ RMR = 0.119 GFI = 0.881 NFI = 0.928 RFI = 0.887 IFI = 0.951 TLI = 0.935 CFI = 0.941 RMSEA = 0.050.
Goodness of fit indices for the baseline model (Health concern).
$\chi^2 = 1{,}756.280$ df = 733 $Q(\chi^2/df) = 2.396$ RMR = 0.130 GFI = 0.860 NFI = 0.911 RFI = 0.899 IFI = 0.946 TLI = 0.939 CFI = 0.946 RMSEA = 0.039.

TABLE 6 The structural invariance assessment for health concern.

Path	High health concern β (t-value)	Low health concern β(t-value)	Baseline model χ^2 (df)	Nested model χ^2 (df)
Healthiness → Attitude	0.734 (21.24)*	0.463 (6.01) *	$\chi^2 = 1{,}756.280$ (733)	$\chi^2 = 1{,}761.013$ (734)

*$p < 0.05$, High health concern group (N = 271), Low health concern group (N = 184).
Goodness of fit indices for baseline model (Health concern).
Chi-square difference test: $\Delta\chi^2 = 1{,}761.013–1{,}756.280 = 4.733^*$ H5 is supported.

by hygiene (β = 0.222, $p < 0.05$) and organicness (β = 0.645, $p < 0.05$), whereas healthiness is negatively influenced by nutritional disclosure (β = −0.129, $p < 0.05$). The results also exhibited that healthiness (β = 0.663, $p < 0.05$) positively affected attitude; both the high health concern group with healthiness (β = 0.734, $p < 0.05$) and the low health concern group with healthiness (β = 0.463, $p < 0.05$) positively affected attitude. Finally, attitude exerted a positive impact on purchase intention (β = 0.888, $p < 0.05$). H1, H2, H3, H4, and H6 are supported.

Table 6 exhibited the results of the structural invariance test. The baseline model is statistically noteworthy regarding goodness of fit indices ($\chi^2 = 1756.280$ df = 733 $Q(\chi^2/df) = 2.396$ RMR = 0.130 GFI = 0.860 NFI = 0.911 RFI = 0.899 IFI = 0.946 TLI = 0.939 CFI = 0.946 RMSEA = 0.039). For checking the moderating effect, this study carried out a structural invariance test with health concerns as the moderator. χ^2 of the baseline model is 1,756.280 and its degree of freedom is 733; χ^2 of the nested model is 1,761.013. By computing $\Delta\chi^2$, a significant difference was identified ($\Delta\chi^2 = 4.733$, $p < 0.05$), suggesting that healthiness exerted significantly difference impact on attitude by comparing both the high health concern group and the low health concern group. Therefore, H5 is supported given the results of structural invariance appraisal. Figure 2 summarizes the results of hypothesis testing.

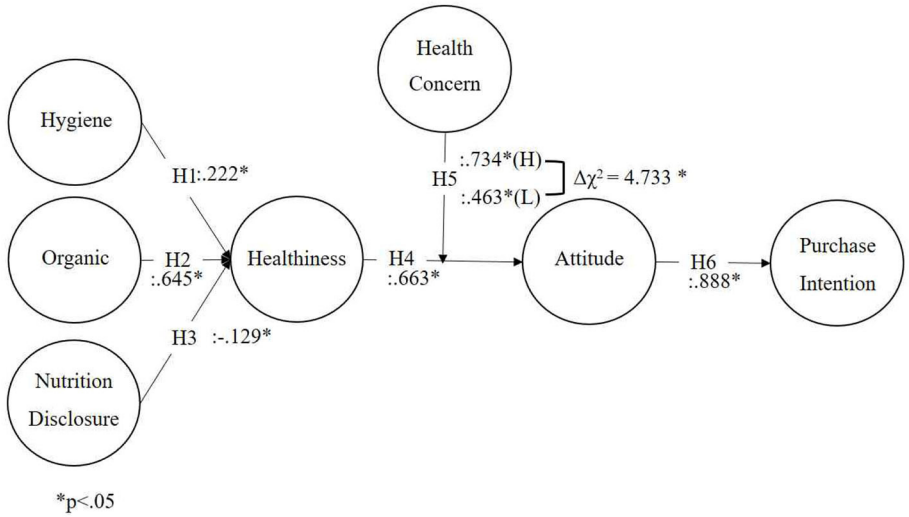

FIGURE 2
Results of structural equation model.

Discussion

This research aimed to investigate the antecedents and consequences of healthiness in the domain of café businesses. The results implied that hygiene and organic elements resulted in higher levels of healthiness for café products. The results for both hygiene (Djekic et al., 2014; Fleetwood, 2019) and organicness (de Magistris and Gracia, 2008; Yu and Friedhelm, 2018) are aligned with the findings of extant literature. Concerning the magnitude, organicness exerted a stronger impact than hygiene. It can be inferred that consumers place more value on promoting health conditions by consuming food as compared to the clean cooking process. In contrast, nutritional disclosure led consumers to perceive café products as unhealthy. The findings support the prior studies' arguments that café products' nutritional information reveals high levels of sugar and caffeine, which could build negative perception for consumers in terms of healthiness (Morean and Wedel, 2017; Reyes and Cornelis, 2018; Bergeron et al., 2019). Wang et al. (2016) found that the nutritional disclosure symbol exerts a positive effect on consumer perception, while the results of the current study showed that nutritional disclosure information including caffeine and calories brought about a negative healthiness perception by consumers. Healthiness also appeared as a significant determinant of attitude, meaning that offering healthy food and beverages could build more positive attitudes for coffee product consumers. The results confirmed the outcomes of prior research regarding the relationship between healthiness and attitude in the café business domain (Hung et al., 2016; Rana and Paul, 2017). Next, this research revealed that health concern was a substantial moderator between healthiness and attitude. To be specific, if an individual is concerned more about their health condition, food healthiness more strongly establishes a positive attitude in those café consumers than in low-level health-conscious customers. This finding supports the prior studies' claim that health concern plays an essential moderating role (Singhal, 2017; Ahadzadeh et al., 2018). To be specific, Singhal (2017) found that consumers who are health concerned were more sensitive to building a positive perception of the organic food product. The results of this research also unveiled that café consumers with high health concerns were more keenly influenced by the healthiness of food toward building a positive attitude. Last, the results illustrated that positive attitudes could play a critical role in accomplishing sales growth of a business by stimulating purchase intention, which externally validated the findings of previous research in the context of café businesses (Paul and Bhakar, 2018; Lee, 2019).

Conclusion

Theoretical contribution

This study investigated the determinants of healthiness in the domain of a café businesses. The results showed that hygiene and organicness positively affected the perceptions of healthiness, while it was found that nutritional disclosure negatively impacted the perception of healthiness of café businesses. Next, this study revealed that attitude is positively influenced by the healthiness of a café; the association between healthiness and attitude is significantly moderated by health concerns. Last, this study uncovered that purchase intention

is positively impacted by attitude. This study has theoretical contributions. First, this research demonstrated the moderating effect of health concerns in the café business sector. Even though researchers have implemented bountiful research in the café business consumer behavior domain (Thompson and Arsel, 2004; Jang et al., 2015; Kim et al., 2018; Jang and Lee, 2019; Shim et al., 2021), the moderating effect of health concern could be a research gap. This research gap encouraged us to research and inspect the moderating effect of health concerns and this study documented its substantial effect, which is the theoretical contribution of the current work. Second, this research proposed healthiness's three antecedents: hygiene, organicness, and nutritional disclosure. The finding presented an essential link between these three variables and healthiness. Since the healthiness of food could be defined variedly depending on the sort of food, it is valuable to clearly define food healthiness in the context of the café business. The last contribution of this research is to validate the findings from prior studies on the association between attitude and purchase intention in the coffee shop consumer research area (Hartmann and Apaolaza-Ibáñez, 2012; Abzari et al., 2014; Paul and Bhakar, 2018; Lee, 2019).

Practical implication

This study presents practical implications. Coffee shop managers need to more thoroughly manage the cleanliness of store areas, namely dining areas, restrooms, and kitchen conditions. A fresh and clean store atmosphere is likely to enhance the perception of the healthiness of the product for customers. Additionally, hygiene-related aspects could reduce the concern of consumers by protecting consumers from COVID-19. Café managers might choose organic products as well as emphasize the organic aspects of products to enhance the perception of healthiness. This could also be applied to the packaging for coffee bean sales by upgrading the visibility of the organic mark more. Compared to hygiene, organic features might become the priority as it is likely to provide more effective resource allocation to achieve a healthy product image. The results showed a negative association between healthiness and nutritional disclosure. Given the results, café managers might conservatively approach presenting nutritional information of café products because it could diminish the health image of coffee shop food and beverages. However, coffee business managers should keep in mind that excessively screening nutritional information might undermine the business reputation, which is likely to result in a huge amount of loss in the market as the business could be regarded as a socially irresponsible one. Additionally, coffee shop managers should relay food healthiness to customers because healthiness plays an imperative role in fostering a positive attitude. Café managers also need to invest in a healthy menu (e.g., decaffeinated coffee options, low calorie coffee and tea, and food products with healthy ingredients) development because it affects customers who are health concerned more convincingly. Finally, coffee shop business managers could carry out a strategy that includes corporate social responsibility and public relations, which build a positive attitude because it helps businesses achieve more sales by indirectly stimulating purchase intention.

Limitations and suggestions for future research

This study has limitations. First, the determinants of healthiness were constrained to three attributes. Future research could examine the more diverse antecedents of healthiness. Moreover, the survey participants were limited to Americans. To attain the generalizability of the results in the current study, researchers need to explore other geographical area cases because the markets perceive coffee shop products in different ways. Future studies additionally could consider various consequences (e.g., intention to revisit, value, and risk) to examine consumer behavior, which might become the avenue to make café business consumer studies more bountiful. Furthermore, future research might consider the attitude-behavior theory as a theoretical foundation for understanding consumer behavior in the café business domain. Such an effort might become the avenue to theoretically make the café consumer literature more fertile.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Author contributions

MS: research design and writing. WL: data analysis and writing. JM: administration and writing. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

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