A Study on the Selection Attributes Affecting Pet Food Purchase: After COVID-19 Pandemic

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ABSTRACT
This study aimed to test empirically a theoretical model defining the selection attributes of pet food, which are increasing notably in Korea. The proposed model incorporates three phases: Selection attributes, recommendation and attitude, and purchase intention. A total of 450 questionnaires were issued, and the survey results were analyzed to verify the reliability and validity of the measured variables. A Structural Equation Model (SEM) was used to test the hypotheses of the study. The results showed that package design, price fairness, brand reputation, and perception of product healthiness positively affected both recommendation and attitude; moreover, purchase intention was enhanced by recommendation and attitude. However, the relationships between attributes, recommendation, and attitude differed among pet food shopping channels. This study analyzed the relationships between the selection attributes of pet food, recommendation, and attitude when customers bought pet food. It further analyzed how the relationship between selection attributes and recommendation, and the relationship between selection attributes and attitude differed between groups using online and offline channels for their purchase during COVID19 pandemic.

Introduction
The ‘Pet Economy’ is a rapidly growing industry, which has changed the perception of companion animals. This trend has led to the reevaluation of products and marketing strategies to maximize the potential profits of the company. Product differentiation based on a variety of unique properties (color, texture, odor, shape, etc.) and external properties such as brand, country of origin, image, etc. is now being used. Businesses need to be aware of consumer perceptions of the value associated with different product attributes to accommodate increasingly specialized consumer needs. The ability of the company to accurately analyze and interpret consumer value perceptions and expectations is critical for successfully capturing and maintaining market share in expanding special pet food categories. In the United States, where the pet economy is the most developed, the percentage of households with pets in 2019 was 67% (85 million households), and the American Pet Products Association (APPA) predicted that expenditures for companion animals would continue to grow from 72.6 USD billion in 2018 to 75.4 USD billion in 2019. In particular, according to this announcement, the proportion of the pet economy in 2019 was 31.68 USD billion for pet food, 18.11 USD billion for beauty, 16.01 USD billion for supplies (including drugs), and 2.01 USD billion for adoption.

Hence, it can be seen that the food market related to companion animals is the most important sector of the companion animal industry. As a companion animal has been defined as such, it has established itself as a family-like entity, and accordingly, there is a continuous need to develop high

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quality and safe companion animal food. In line with this trend, increasing numbers of companies are seeking to develop animal food at the level of food consumed by humans. Indeed, products from overseas global food companies such as Mars and Nestle already account for a large proportion of the high-quality companion animal food industry, and several domestic companies have joined the market lately. In addition, food used by pets is commonly used as ‘food for pets’ by using the term ‘Pet food’ in the United States and the United Kingdom. As such, the companion animal food industry is an interesting topic of research for domestic food researchers and food companies, and its development potential is very high due to the rapid growth of the domestic companion animal industry.

Despite the explosive demand for pet food and the growth of the companion animal business, limited studies to date have shown the relationship between purchase attributes, purchase satisfaction, and animal welfare. The purpose of this study is to analyze the determinants and factors influencing repurchase when consumers purchase food for companion animals, and verify the moderating effect of offline channels and online channels, which currently exhibit a rapid growth trend.

**Theoretical background**

Since there are few studies on the determinants of pet food purchase in the theoretical background of existing research, we intend to use factors from consumers’ purchase of food, especially food for babies and children, because humans’ attitude toward pets is very similar to their attitude toward children.

**Brand reputation**

Companies with a good reputation, high levels of customer awareness, positive product image, and low-level cognition associated with risk have a major advantage, proved that, when evaluating a product or service, brand image and reputation function as important external signals that can attract consumers and influence purchase intentions. According to, brands affect cognitive quality directly, and services or products have a much greater influence on cognitive quality than physical properties.

Brand reputation of food products helps consumers make decisions, especially when a special signal is lacking. Consumers prefer brands that have a direct relationship with and a good reputation, which directly concern values and are important to them. For consumers, brand reputation can serve as logical reinforcement when shaping their attitude regarding food consumption. Articles about certain food brands appearing in reputable magazines can influence consumer attitudes. Positive or negative guarantees for food brands can affect brand reputation, which affects consumer attitudes toward brands and products related to the brand. Previous research suggests that brand reputation significantly affects consumers’ purchasing attitude and recommendation of food.

**Price fairness**

As proposed, since price fairness is a major factor that affects product impression, price fairness can lead to positive recommendations and transition behavior, proved customers’ perception of prices fairness led to positive recommendation, higher levels of repurchase behavior, and decreased customer complaints, showed that the recognition of price fairness refers to the overall consumer assessment of whether the offer price of the seller’s products is actually justifiable, acceptable, or reasonable. In particular, customers tend to make better judgments about selling costs, transfer prices, and competitive prices when evaluating price fairness by referring to a variety of products. According to, the price of a product can affect the customer’s attitude because customers tend to consider the price each time they evaluate the given value of a product purchased, found that price fairness has a significant positive impact on customer attitudes.
**Package design**

Packaging plays an important role in attracting consumers’ attention and influencing consumers’ purchasing attitude. Packaging provides food companies with a final opportunity to persuade consumers to buy products just before they choose them in the context of current food retailing. Therefore, regarding purchasing a product, all packaging elements must be combined to attract consumers.\(^{23}\) Food packaging can affect consumer purchasing attitude and give rise to consumer expectation.\(^{24–26}\) If customer expectations generated by the package are high, the consumer becomes interested in the product and could therefore choose to purchase it.\(^{15,27}\) found that package design was a selection attribute of instant food that influenced the consumers’ purchasing attitude.

**Perceptions of product healthiness**

Consumer perception of a product’s healthiness is important in defining consumer acceptance of food.\(^{28}\) suggest that food healthiness affects food intake as well as attitude toward food. Moreover, the literature found that there is a strong link between people’s perception of product healthiness and their willingness to purchase these products.\(^{29,30}\) suggested that awareness of health benefits has a significant and positive impact on customer behavior,\(^{31,32}\) said that since awareness of product healthiness is directly related to the evaluation of a particular product, it can predict attitudes or purchasing decisions.\(^{33}\) suggested that the health benefits of food are related to emotional judgment. Consumers often have strong feelings about their health problems, and this emotional orientation is related to emotional commitment,\(^{34–37,30}\) and suggested that awareness of health benefits has a significant impact on purchase intention. Based on this review of the literature, the following hypothesis is suggested.

**Recommendation**

Acknowledged that food choices are determined not only by product-related factors, but also by other contextual factors.\(^{38–42}\) Consumers often receive advice and recommendations from others when looking for information about new products. Therefore, recommendations can affect consumer response to new foods. Previous studies have examined the impact of recommendations on the acceptance of unfamiliar foods.\(^{27}\)

**Attitude**

Suggested that attitudes can influence purchase intention and purchasing behavior.\(^{43}\) Therefore, the following hypothesis proposing the relationship between the overall attitude toward pet food products and the intention to purchase is suggested,\(^{44}\) revealed that a positive attitude toward online food delivery services influences the intention to use the service,\(^{45}\) also found that user attitude plays an important role in shaping the intention to use mobile shopping,\(^{46}\) reported that customer attitudes positively affect intentions to use online shopping. Therefore, based on the discussion above, the following hypotheses are presented:

**H1a:** Price fairness induces the consumers’ recommendation of the pet food.

**H1b:** Brand reputation induces the consumers’ recommendation of the pet food.

**H1c:** The package design induces the consumers’ recommendation of the pet food.

**H1d:** The perceptions of product healthiness induce the consumers’ recommendation of the pet food.
H2a: Price fairness influences the consumers’ attitude toward the pet food.

H2b: Brand reputation influences the consumers’ attitude toward the pet food.

H2c: The package design influences the consumers’ attitude toward the pet food.

H2d: The perceptions of product healthiness influence the consumers’ attitude toward the pet food.

**Purchase intention**

The intention to purchase refers to the possibility that consumers will repeatedly purchase, and plan and purchase a particular product in the future and refuse to purchase others,\(^{[36,47–49,50]}\) experimentally demonstrated that when consumers purchased HMR products and felt satisfied, they were more likely to purchase them again. In their study,\(^{[14]}\) verified that word of mouth and product image significantly affect customers’ choice of food for infants and toddlers using empirical analysis. In modern society, companion animals are treated like children at home, and when purchasing food for companion animals, consumers evaluate the food as they would their children’s food. Based on this discussion, the following hypotheses can be proposed.

H3: Recommendation influences purchase intention of pet food.

H4: Attitude influences purchase intention of pet food.

**Online/offline channel**

Online and offline language communication are similar in terms of informal interaction, which facilitates direct and indirect experiences and information exchange between consumers for goods and services.\(^{[51]}\) Nestle Purina, a pet food specialty brand, established their official online mall, Purina Pet Care. Purina Pet Care is characterized by their expanding customer service, which includes providing a personalized 1:1 diet for pets, regular delivery, and membership. Nestle Purina offers a 1:1 customized diet through their online mall. In this method, up to 10 products are recommended based on the species, age, and characteristics of the companion animal using 650,000 data algorithms and input from an in-house professional veterinarian.\(^{[52]}\) A study on online food shopping focused on comparing features such as price sensitivity and brand loyalty in online and offline channels.\(^{[53–56]}\) In Korea, consumers buy food online for the following reasons. First, changes in the values of consumers seeking convenience. The increase in single households is the second reason. The third reason is that rational purchasing increased in economic crises such as recession, financial crisis, and high oil prices. Fourth is the advancement in food standardization and the development of delivery and packaging technology. The fifth reason is that worry about safety is reduced when purchasing food online since it is mandatory to label the origin of all agricultural and livestock products sold in the food category of the e-commerce market. The final reason is that amendments to the enforcement regulations of the Food Sanitation Act made it possible to sell food from instant sales manufacturers and processing businesses online.\(^{[57]}\)

H5: The effect of selection attributes of pet food on recommendation varies depending on the channel.

H6: The effect of selection attributes of pet food on attributes varies depending on the channel.
Materials and methods

Measurement

The selection attributes composed of four sub-dimensions with brand reputation, price fairness, package design, perception of product healthiness. To measure the items from previous studies, 16 measurement items were adapted. Second, recommendation was measured using four items. Third, attitude was measured by four items adopted from. Fourth, purchase intention was measured using four items employed by. All items were measured by 16 items in a seven-point (1 = strongly disagree, 7 = strongly agree) Likert scale. Moreover, the seven specialists were involved to check the content validity: (1) 5 professors from foodservice management and veterinary medicine, (2) 2 corporate experts who are from Lotte Group that is one of the big retailers on pet food company. Content was validated after reviewing the questionnaire.

Data analysis

The multivariate data analysis was used to analyze the data. However, multivariate outliers can severely distort the estimation of population parameters. Detecting multivariate outliers is mainly disregarded or done by using the basic Mahalanobis distance. To estimate reliability or internal consistency of a composite score, Cronbach’s alpha test was used.

A pilot test was conducted with 35 focused group customers who had bought pet food for the last 3 months in South Korea. The focused group of survey was conducted by the survey company, which sent an invitation to 532 pet food customers using SNS, and completed 490 questionnaires. After confirming multivariate outliers using a Mahalanobis distance check and a visual inspection, 40 respondents were removed among them. The survey focused on modifying and evaluating the questionnaire to assess reliability and validity of the presented scale. The data analysis showed that the Cronbach’s alpha value for all components was greater than 0.8 which indicates a decent level of reliability. The results of analyzing were verified and the final questionnaire was used to collect data for evaluating the study model. A total of 450 questionnaires were used for further analysis. Of the 450 responses, 39.6% (n = 178) were males and 60.4% (n = 272) were females. Moreover, 42.4% (n = 191) were in their 20s, 34.1% were in their 30s (n = 153). The largest expenditure for pet food was 101 USD to 300 USD (n = 188, 41.7%). Lastly, 38.2% of the respondents (n = 172) were students. Table 1 presents the classification characteristics of the respondents.

The results showed each eigenvalue more than 1.0 with seven-factor structure. Furthermore, the value of Kaiser–Meyer–Olkin was .933 supporting the validity of the factor model, and the Bartlett’s test of was also statistically significant at the p < .001. With all items the factor loading values were

| Variables | Measure | No. of sample(per) | Percentage (%) | Variables | Measure | No. of sample(per) | Percentage (%) |
|-----------|---------|--------------------|----------------|-----------|---------|--------------------|----------------|
| Gender    | Male    | 178                | 39.6%          | Occupancy | Student | 172                | 38.2%          |
|           | Female  | 272                | 60.4%          |           |         |                    |                |
| Age       | 10's    | 32                 | 7.2%           | Office worker | 51     | 11.4%              |
|           | 20's    | 191                | 42.4%          | Housewife | 158    | 35.2%              |
|           | 30's    | 153                | 34.1%          | Own       | 29     | 6.5%               |
|           | Over 40's | 73                | 16.3%          | Business |         |                    |                |
| Income    | < 500   | 28                 | 6.2%           | Pet Food | < 50    | 54                 | 12.1%          |
| Per month (thousand) | 500–1000 | 100              | 22.3%          | Expenditure | 50–100 | 103                | 22.8%          |
| USD)      | 1001–3000 | 167           | 37.1%          | Per month | 101–300 | 188                | 41.7%          |
|           | 3001–5000 | 116         | 25.7%          | (thousand) | 301–500 | 79                 | 17.5%          |
|           | > 5000  | 39                 | 8.7%           | USD) > 500    | 27     | 5.9%               |
larger than 0.7, and all communalities were higher than .50. For each domain, the Cronbach’s alpha was over .80, and the total explained variance was 75.9% which verified the internal consistency.\textsuperscript{[58]}

Providing evidence of strong internal consistency, the factor loadings for all items were significant and substantial\textsuperscript{[59]}. The discriminant validity among each factor was verified using the square root of the AVE. The value of the square root of AVE is greater than the non-diagonal correlation value in the related column and row which is higher than 0.5.\textsuperscript{[60]} As a result, the confirmatory factor analysis shows the fitness index was satisfactory, with \(\chi^2\) statistic = 470.056 (df = 231, Chi-square/df = 2.034, \(p < .001\), NFI = .932, IFI = .964, CFI = .964, TLI = .957, and RMSEA = .048.\textsuperscript{[61]} The average variance extracted (AVE) values for all variables were above 0.6 and the composite reliability (CR) was greater than the value of criteria suggested (above 0.8) indicating desired convergent validity. Table 2 shows the result of confirmatory factor analysis. The discriminant validity tests whether concepts or measurements that are not supposed to be related are actually unrelated,\textsuperscript{[62]} introduced the concept of discriminant validity within their discussion on evaluating test validity. Table 3 presents the correlation analysis for discriminant validity of the research.

| Table 2. Confirmatory factor analysis. |
| --- |
| Variables | Standardized Factor loading | CR | AVE |
| Package design | DESI 1 | 0.80 | 0.85 | 0.60 |
| | DESI 2 | 0.92 | |
| | DESI 3 | 0.78 | |
| Price fairness | PRIC 1 | 0.80 | 0.88 | 0.65 |
| | PRIC 2 | 0.84 | |
| | PRIC 3 | 0.88 | |
| | PRIC 4 | 0.70 | |
| Brand reputation | REPU 1 | 0.70 | 0.87 | 0.63 |
| | REPU 2 | 0.74 | |
| | REPU 3 | 0.85 | |
| | REPU 4 | 0.88 | |
| Perceptions of product healthiness | HEAL 1 | 0.83 | 0.87 | 0.63 |
| | HEAL 2 | 0.70 | |
| | HEAL 3 | 0.75 | |
| | HEAL 4 | 0.87 | |
| Recommendation | RECO 1 | 0.71 | 0.87 | 0.62 |
| | RECO 2 | 0.85 | |
| | RECO 3 | 0.83 | |
| | RECO 4 | 0.76 | |
| Attitude | ATTI 1 | 0.74 | 0.80 | 0.66 |
| | ATTI 2 | 0.87 | |
| Purchase intention | PURC 1 | 0.85 | 0.88 | 0.72 |
| | PURC 2 | 0.90 | |
| | PURC 3 | 0.79 | |

\(\chi^2 = 470.056 \text{ (df = 231, Chi-square/df = 2.034, } p < .001\text{)}, \text{ NFI = .932, IFI = .964, CFI = .964, TLI = .957, and RMSEA = .048 (} p < .001\text{)}\)

| Table 3. Correlation analysis for discriminant validity. |
| --- |
| | ATTI | HEAL | DESI | RECO | REPUT | PURC | PRIC |
| ATTI | 0.815 | |
| HEAL | 0.554 | 0.791 | |
| DESI | 0.364 | 0.315 | 0.777 | |
| RECO | 0.491 | 0.542 | 0.283 | 0.790 | |
| REPUT | 0.552 | 0.507 | 0.276 | 0.613 | 0.794 | |
| PURC | 0.613 | 0.621 | 0.342 | 0.703 | 0.556 | 0.846 | |
| PRIC | 0.534 | 0.511 | 0.598 | 0.533 | 0.522 | 0.484 | 0.806 |

ATTI = Attitude, HEAL = Perceptions of product healthiness, DESI = Package design, RECO = Recommendation, REPUT = Brand reputation, PURC = Purchase intention, PRIC = Price fairness
**Structural model assessment**

As a result of fit indices indicate the provided conceptual model had a decent fit (Chi square = 492.877, df = 236, χ2/df = 2.08, p < .001, NFI = .928, IFI = .961, CFI = .961, TLI = .955, and RMSEA = .049),[62] indicating evidence for the desired fitted structural model.[63] The results of the SEM, as shown in Figure 1, indicated that all of the proposed hypotheses were supported, except for the H1a and H2a. More specifically, this study found that price fairness was positively related to recommendation (β = 0.185, p < .001), and attitude (β = 0.181, p < .05), therefore, H1b, H2b were supported. Brand reputation was positively related to recommendation (β = 0.340, p < .001), and attitude (β = 0.318, p < .001), supporting H1c, H2c. Perceptions of product healthiness was positively related to recommendation (β = 0.286, p < .001), and attitude (β = 0.412, p < .001), providing support for H1d, H2d. Purchase intention was significantly affected by recommendation (β = 0.551, p < .001), and attitude (β = 0.317, p < .001), thus, H3 and H4 were supported. However, findings indicated non-significant relationships between package design and recommendation (β = 0.033, p > .05), and between package design and attitude (β = 0.095, p > .05), therefore, H1a and H2a were rejected. The results are presented in Table 4.

**Moderating role of on/offline channel**

To evaluate the hypotheses, a multiple-group in SEM was employed.[61] To examine the effect of the selection attributes of pet food on the recommendation, attitude toward pet food, First, the total sample (n = 450) was divided into the online channel group (n = 179) and the offline channel group (n = 271) and the paths were compared. The results for the groups revealed as follows.

![Figure 1. SEM result of the research model.](image-url)
First, the relationship between selection attributes and recommendation was evaluated (H5a to H5d) to verify the moderating role of shopping channels. The coefficient for the path between selection attributes and recommendation was compared between online channel group and offline channel group. The comparison results showed that the effect of package design, price fairness, and perceptions of product healthiness of the pet food on recommendation were more apparent on online channel group (package design, $\beta = 2.242$, price fairness, $\beta = 3.047$, perceptions of product healthiness, $\beta = 0.589$), whereas the effects of brand reputation on recommendation was more apparent on offline channel group (brand reputation $\beta = 0.243$).

Second, the relationship between selection attributes and attitude was evaluated (H6a to H6d) to verify the moderating role of shopping channel. The coefficient for the path between selection attributes and attitude was compared between online channel group and offline channel group. The comparison results showed that the effect of package design, price fairness, and perceptions of product healthiness of the pet food on attitude was more apparent for online channel group (package design, $\beta = 1.628$, price fairness, $\beta = 2.016$, perceptions of product healthiness, $\beta = 1.421$), whereas the effects of brand reputation on attitude were more apparent on offline channel group (brand reputation $\beta = 0.713$).

However, it was found that the effect of price fairness on recommendation and attitude was statistically significant difference comparing incremental value of the chi-square with $p$ value. Online shopping channel is more sensitive to the price fairness of pet food on recommendation ($\beta = 3.047$) and attitude ($\beta = 2.016$).

Therefore, the moderating effect of shopping channel has been verified empirically. This finding indicates that price fairness was significantly more effective in enhancing recommendation and attitude of pet food in online shopping channel group than in offline channel shopping group, which supports Hypothesis 5b, 6b. Table 5 shows the results for the moderating role of

### Table 4. Standardized parameter estimates for structural model.

| Hypothesis | Path                                      | Standardized regression coefficient | $t$ -value | Results |
|------------|-------------------------------------------|-------------------------------------|------------|---------|
| H1a        | Package design $\rightarrow$ Recommendation | 0.033                               | 0.708      | Reject  |
| H1b        | Price fairness $\rightarrow$ Recommendation | 0.185                               | 3.436 ***  | Support |
| H1c        | Brand reputation $\rightarrow$ Recommendation | 0.340                               | 6.717 ***  | Support |
| H1d        | Perceptions of product healthiness $\rightarrow$ Recommendation | 0.286                               | 4.900 ***  | Support |
| H2a        | Package design $\rightarrow$ Attitude     | 0.095                               | 1.554      | Reject  |
| H2b        | Price fairness $\rightarrow$ Attitude     | 0.181                               | 2.565 *    | Support |
| H2c        | Brand reputation $\rightarrow$ Attitude   | 0.318                               | 4.877 ***  | Support |
| H2d        | Perceptions of product healthiness $\rightarrow$ Attitude | 0.412                               | 5.344 ***  | Support |
| H3         | Recommendation $\rightarrow$ Purchase intention | 0.551                               | 10.409 *** | Support |
| H4         | Attitude $\rightarrow$ Purchase intention | 0.317                               | 7.321 ***  | Support |

### Table 5. Comparison of online channel and offline channel.

| Path          | Standardized Regression Coefficient | Comparison Results | Chi-square increment | $p$ - value |
|---------------|-------------------------------------|--------------------|----------------------|-------------|
| DESI$\rightarrow$RECO | 2.242                               | Online $>$ Offline | 3.160 (d.f. = 1)     | 0.075       |
| PRIC$\rightarrow$RECO | 3.047                               | Online $>$ Offline | 7.562 (d.f. = 1)     | 0.006 **    |
| REPUT$\rightarrow$RECO | 0.171                               | Online $<$ Offline | 0.511 (d.f. = 1)     | 0.475       |
| HEAL$\rightarrow$RECO  | 0.589                               | Online $>$ Offline | 0.591 (d.f. = 1)     | 0.442       |
| DESI$\rightarrow$ATTI  | 1.628                               | Online $>$ Offline | 2.102 (d.f. = 1)     | 0.147       |
| PRIC$\rightarrow$ATTI  | 2.016                               | Online $>$ Offline | 4.145 (d.f. = 1)     | 0.042 *     |
| REPUT$\rightarrow$ATTI | 0.258                               | Online $<$ Offline | 1.743 (d.f. = 1)     | 0.187       |
| HEAL$\rightarrow$ATTI  | 1.421                               | Online $>$ Offline | 0.992 (d.f. = 1)     | 0.319       |

DESI = Package design, PRIC = Price fairness, REPUT = Brand reputation, HEAL = Perceptions of product healthiness, RECO = Recommendation, ATTI = Attitude, PURC = Purchase intention
shopping channel. Table 5 shows the differences between the online and offline channel shopping groups.

**Discussion and implication**

The implications of the results of this study are as follows. Based on the results of previous research, it was assumed that package design, price fairness, brand reputation, and awareness of health products would have a positive effect on the attitude and recommendation of pet food customers.

The empirical analysis showed that all the selection attributes except package design had a statistically significant positive effect on the overall attitude and recommendation of pet food customers. Additionally, attitude and recommendation were found to influence purchase intention.

Specifically, the implications of this study are as follows. First, the brand reputation and perceptions of product healthiness of a pet food have a statistically significant and stronger impact on recommendation in comparison to price and packaging design. In particular, brand reputation is the most influential factor in the recommendation intention, as the study by,[64] shows. This is considered a major measure by consumers in not only the pet food industry, but also the food, dining out, and hospitality industries[65].

Second, the product health awareness and brand reputation of pet foods, as well as other factors that affect recommendations have a statistically significant impact on attitudes. In particular, perception of product healthiness was the most influential factor on attitudes. This aligns with previous research that consumers have a positive attitude toward purchasing food only when the perception of product healthiness is guaranteed.[66]

Third, the most powerful influence on the purchasing intentions of a pet food was its recommendation. Therefore, brand reputation, which affects recommendation intentions the most, has proved to be the most influential choice attribute in the purchase of pet food. The study by,[67] obtained the same result.

Fourth, while the price of pet food has a statistically significant effect on recommendation intentions and consumer attitudes, it is not as significant as brand and perceptions of product healthiness. However, it varies depending on whether online or offline channels are used to buy pet food. Only price shows a statistically significant moderating effect between online and offline channels, with consumers being more sensitive to prices on online channels. This has also been demonstrated in a study by,[68] which shows that one of the purposes for consumers to shop online is economic efficiency.

This study proposes the following practical implications. First, in general, when purchasing products, especially food products, consumers are attracted to the exterior packaging.[24–26] However, this study demonstrated that package design did not matter much to customers who purchased pet food. These differences are thought to be related to the concept of pet food sustainability. Consumers who raise pets with affection and interest like children also have high environmental and ethical awareness.[69] Therefore, companies should consider eco-friendly packaging and design with sustainability in mind when developing pet food packaging and package designs.

Second, recommendation intention affecting purchase intentions of pet food is most affected by brand reputation. Therefore, companies need to build brand reputation for sustainable marketing of pet food, which does not happen in a short period. Therefore, in order for companies to succeed in the pet food business, they must promote their image as eco-friendly and ethical enterprises along with the concept of sustainability over a long period. Companies with such a brand reputation will be able to place high on the current rapidly growing pet food market.

Third, many food products have been rapidly moving from offline to online platforms due to the recent COVID-19 pandemic. In particular, the consumption of various convenience foods, processed foods, and pet food is also increasing as the time spent at home is increasing.[70] Price is the most important attribute when consumers buy pet food online. Companies need to implement this clearly
in their marketing. Therefore, companies need to build an environmental and sustainable image in offline stores and aggressively sell low-cost items with large discounts online. Therefore, in the rapidly growing online food market, pet food has been found to offer a huge opportunity to companies.

Conclusion

In this rapidly growing pet food market, this study examines which selection attributes are important to consumers when purchasing pet food. Additionally, it analyzes how the selection attributes affect the consumer’s recommendation and attitude to examine the effects of recommendation and attitude on purchase intention. Selection attributes that consumers consider important when purchasing pet food were examined from the existing theoretical background. Then, the effect of the selection attributes on recommendation and attitude and the effects of recommendation and attitude on purchase intention were investigated. The results of this study showed that pet food price fairness, brand reputation, and perceptions of product healthiness had a statistically significant positive effect on recommendation and attitude. Moreover, the path coefficient from recommendation and attitude to purchase intention was statistically significant. However, this relationship varied based on whether online or offline purchase channels were used. The influence of package design, price fairness, and perceptions of product healthiness on recommendations and attitudes was greater in the online channel group, while the influence of brand reputation on recommendations and attitudes had a greater impact in the offline channel group. However, statistically significant differences were found only with price fairness influencing recommendations and attitudes in the online channel group. Although this study found significant implications that pet food selection attributes, attitudes, and recommendations influence purchase intention, the following limitations exist. First, although customer attitude toward pets is similar to their attitude toward human children, it is not the same. Second, depending on whether the purchase channel for pet food is a department store, discount store, or specialty store, customer selection attributes may vary. Third, only an online-offline channel comparison was performed to verify the channel’s moderating effect, and comparisons that are more diverse are needed. For example, additional research is needed regarding the moderating effect of income level, age, and the attachment relationship with pets. Finally, this study was conducted only in Korea. Due to differences in cultural specificity, future research is needed for comparison with other countries.

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References

[1] American Pet Products Association. Pet Industry Market Size & Ownership Statistics. http://www.americanpetproducts.org/press_industrytrends (accessed 14 July 2020).
[2] Ampuero, O.; Vila, N. Consumer Perceptions of Product Packaging. J. Consum. Market. 2006, 23(2), 100–112.
[3] Silayoi, P.; Speece, M. The Importance of Packaging Attributes: A Conjoint Analysis Approach. Eur. J. Market. 2007, 41(11/12), 1495–1517.
[4] Son, S.; Bae, J. M.; Park, S. J.; Lee, H. J.; Lee, H. S. A New Area of Food Industry; Companion Animal Market. Food Sci. Ind. 2017, 50(4), 92–103.
[34] Kemp, E.; Bui, M. Healthy Brands: Establishing Brand Credibility, Commitment and Connection among Consumers. *J. Consum. Market.* 2011, 28(6), 429–437.

[35] Davies, A.; Titterington, A. J.; Cochrane, C. Who Buys Organic Food? A Profile of the Purchasers of Organic Food in Northern Ireland. *Br. Food J.* 1995, 97(10), 17–23.

[36] Chen, M.;: Attitude toward Organic Foods among Taiwanese as Related to Health Consciousness, Environmental Attitudes, and the Mediating Effects of a Healthy Lifestyle. *Br. Food J.* 2009, 111(2), 165–178.

[37] Shi, Z.; Xu, P.; Wang, Z.; Song, S. Willingness to Pay for Traceable Pork: Evidence from Beijing, China. *China Agric. Econ. Rev.* 2012, 4(2), 200–215.

[38] Jaeger, S. R.; Non-sensory Factors in Sensory Science Research. *Food Qual. Preference* 2006, 17(1-2), 132–144.

[39] Jaeger, S. R.; Rose, J. M. Stated Choice Experimentation, Contextual Influences and Food Choice: A Case Study. *Food Qual. Preference* 2008, 19(6), 539–564.

[40] King, S. C.; Weber, A. J.; Meiselman, H. L.; Lv, N. The Effect of Meal Situation, Social Interaction, Physical Environment and Choice on Food Acceptability. *Food Qual. Preference.* 2004, 15(7-8), 645–653.

[41] Köster, E. P. Diversity in the Determinants of Food Choice: A Psychological Perspective. *Food Qual. Preference* 2009, 20(2), 70–82.

[42] Stroebele, N.; De Castro, J. M. Effect of Ambience on Food Intake and Food Choice. *Nutrition* 2004, 20(9), 821–838.

[43] Wills, J. M.; Genannt Bonnmann, S. S.; Kolka, M.; Grunert, K. G. European Consumers and Health Claims: Attitudes, Understanding and Purchasing Behaviour. *Proc. Nutr. Soc.* 2012, 71, 229–236. DOI: 10.1017/S0029665112000043.

[44] Yeo, V. C. S.; Goh, S. K.; Rezaei, S. Consumer Experiences, Attitude and Behavioral Intention toward Online Food Delivery (OFD) Services. *J. Retailing Consum. Serv.* 2017, 35, 150–162.

[45] Rivera, M.; Gregory, A.; Cobos, L. Mobile Application for the Timeshare Industry: The Influence of Technology Experience, Usefulness, and Attitude on Behavioral Intentions. *J. Hospitality Tourism Technol.* 2015, 6(3), 242–257.

[46] Gupta, A.; Arora, N. Understanding Determinants and Barriers of Mobile Shopping Adoption Using Behavioral Reasoning Theory. *J. Retailing Consum. Serv.* 2017, 36, 1–7.

[47] Chih, W. H.; Liou, D. K.; Hsu, L. C. From Positive and Negative Cognition Perspectives to Explore E-shoppers’ Real Purchase Behavior: An Application of Tricomponent Attitude Model. *Inf. Syst. e-Bus. Manage.* 2015, 13(3), 495–526.

[48] Gilaninia, S.; Ganjinia, H.; Moridi, A.; Rahimi, M. The Differential Roles of Brand Credibility and Brand Prestige in the Customers’ Purchase Intention. *Kuwait Chapter Arabian J. Bus. Manage.* Rev. 2012, 2(4), 1–9.

[49] Wu, Y.; Wu, C.; Lee, C.; Tsai, L. The Relationship between Package Redesign and Purchase Intention. *Int. J. Organizat. Innovation (Online).* 2014, 6(3), 50–62.

[50] Cha, S. S.; Lee, S. H. The Effects of HMR Selection Attributes on Repurchase Intention by Shopping Channels. *J. Distrib. Sci.* 2018, 16(3), 13–21.

[51] Abdullah, Q. A.; Yu, J. Attitudes and Purchase Intention Towards Counterfeiting Luxurious Fashion Products among Yemeni Students in China. *Am. J. Econ.* 2019, 9(2), 53–64.

[52] Daily Hankook. Nestle Purina Launches Online Pet Mail ‘Furina Pet Care. 2020. http://daily.hankooki.com/lpage/industry/202002/dh20200221100407147990.htm (accessed 4 June 2020).

[53] Andrews, R. L.; Currim, I. S. Behavioural Differences between Consumers Attracted to Shopping Online versus Traditional Supermarkets: Implications for Enterprise Design and Marketing Strategy. *Int. J. Internet Market Advertising.* 2004,1(1), 38–61.

[54] Chu, J.; Arce-Urriza, M.; Cebollada-Calvo, J. J.; Chintagunta, P. K. An Empirical Analysis of Shopping Behavior across Online and Offline Channels for Grocery Products: The Moderating Effects of Household and Product Characteristics. *J. Interact.Market.* 2010, 24(4), 251–268.

[55] Danaher, P. J.; Wilson, I. W.; Davis, R. A. A Comparison of Online and Offline Consumer Brand Loyalty. *Market. Sci.* 2003, 22(4), 461–476.

[56] Degeratu, A. M.; Kangaswamy, A.; Wu, J. Consumer Choice Behavior in Online and Traditional Supermarkets: The Effects of Brand Name, Price, and Other Search Attributes. *Int. J. Res. Market.* 2000, 17(1), 55–78.

[57] Kim, H.; Kim, M. Analysis of Online Food Purchase Behavior and Factors Determining Online Purchases by Adult Consumers. *J. Korean Soc. Food Sci. Nutr.* 2019. 48(1), 97–108.

[58] Nunnally, J. C. An overview of psychological measurement. Clinical diagnosis of mental disorders. 1978, 97–146.

[59] Fornell, C.; Larcker, D. F. Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *J. Market. Res.* 1981, 18(1), 39–50.

[60] Hair, J. F.; Black, W. C.; Babin, B. J.; Anderson, R. E.; Tatham, R. L. *Multivariate Data Analysis.* Upper Saddle River, NJ: Prentice Hall, 1998, 5(3), 207–219.

[61] Hu, L. T., & Bentler, P. M. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Structural equation modeling: a multidisciplinary journal, 1999, 6(1), 1–55

[62] Byrne, B. M.: Structural Equation Modeling with AMOS: Basic Concepts. *Appl. Programming* (multivariate applications series). New York: Taylor & Francis Group, 2010, 396, 7384.
[63] Campbell, D. T.; Fiske, D. W. Convergent and Discriminant Validation by the Multitrait-multimethod Matrix. *Psychol. Bull.* 1959, 56, 81. DOI: 10.1037/h0046016.

[64] Arani, M. S.; Shafizadeh, H. Investigation of Brand Familiarity and Brand Recognition and Their Relationship with Loyalty, Repurchase Intention, and Brand Recommendation with Mediating Role of Brand Reputation (Case Study: Esteghlal Hotel). *Revista Gestão Tecnologia.* 2019, 19(5), 7–29.

[65] Foroudi, P. Influence of Brand Signature, Brand Awareness, Brand Attitude, Brand Reputation on Hotel Industry’s Brand Performance. *Int. J. Hospitality Manage.* 2019, 76, 271–285.

[66] Hoek, A. C.; Pearson, D.; James, S. W.; Lawrence, M. A.; Friel, S. Shrinking the Food-print: A Qualitative Study into Consumer Perceptions, Experiences and Attitudes Towards Healthy and Environmentally Friendly Food Behaviours. *Appetite.* 2017, 108, 117–131.

[67] Ryan, J.; Casidy, R. The Role of Brand Reputation in Organic Food Consumption: A Behavioral Reasoning Perspective. *J. Retailing Consum. Serv.* 2018, 41, 239–247.

[68] Lim, W. M. Untangling the Relationships between Consumer Characteristics, Shopping Values, and Behavioral Intention in Online Group Buying. *J. Strategic Market.* 2017, 25(7), 547–566.

[69] Barau, A. S.; Stringer, L. C.; Adamu, A. U. Environmental Ethics and Future Oriented Transformation to Sustainability in Sub-Saharan Africa. *J. Cleaner Prod.* 2016, 135, 1539–1547.

[70] Chang, H. H.; Meyerhoefer, C. COVID-19 and the Demand for Online Food Shopping Services: Empirical Evidence from Taiwan. No. w27427. National Bureau of Economic Research, 2020.