

Prince, Sheikh Ashiqurrahman; Wahid, Ishraat Saira

## Article

# The purchase of organic fish in Bangladesh: Safeguarding against COVID-19

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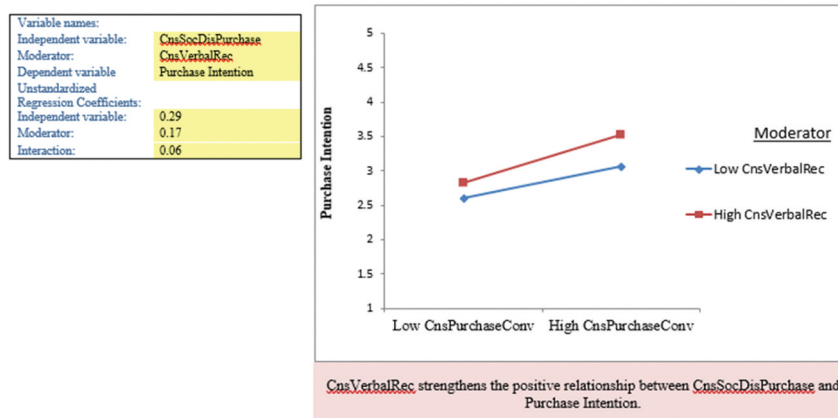
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\*Corresponding author: Sheikh Ashiqurrahman Prince, Department of Management Studies, Bangabandhu Sheikh Mujibur Rahman Science and Technology University, Goplaganj 8100, Bangladesh  
 E-mail: [sheikh\\_prince@yahoo.com](mailto:sheikh_prince@yahoo.com)

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## MANAGEMENT | RESEARCH ARTICLE

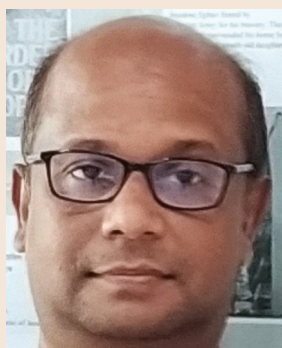
# The purchase of organic fish in Bangladesh: Safeguarding against COVID-19

Sheikh Ashiqurrahman Prince<sup>1\*</sup> and Ishraat Saira Wahid<sup>2</sup>

**Abstract:** Based on the theory of planned behaviour and cognitive dissonance, this research investigates how consumers' consciousness of the attributes of organic fish impacts the number of opportunities to purchase such fish at a safe social distance and how the consciousness of verbal recommendations affect the relationship between the consciousness of necessary social distance to safely buy organic fish and consumers' intention to purchase the fish. Applying these two theories and adding a new variable—social-distance purchasing—into the model, the research contributes significantly to current literature. Using a stratified random sampling, this research collected 320 data points from high, upper-middle and middle-income consumers that have been analysed through Amos Graphics and PROCESS macro in SPSS for the structural equation modelling. The findings of the research provide valuable insights to reduce the infection from COVID-19 as well as enhances the external validity and generalisability of the consumers' organic-food purchasing behaviour research.

**Subjects:** Consumer Psychology; Nutrition; Marketing Research; Consumer Behaviour

**Keywords:** COVID-19; organic fish; consciousness; social-distance purchasing; theory of planned behaviour; theory of cognitive dissonance



Sheikh Ashiqurrahman Prince

## ABOUT THE AUTHORS

Sheikh Ashiqurrahman Prince is an Associate Professor at the Department of Management Studies of Bangabandhu Sheikh Mujibur Rahman Science and Technology University (BSMRSTU), Bangladesh. His research interests include various areas of Business and Management such as Consumer Behaviour, Microcredit Business and Human Resource Management.

Ishraat Saira Wahid is working as an Assistant Professor at the School of Business, University of Liberal Arts Bangladesh (ULAB). Her research interest focuses on various Business and Economics related topic such as Human Resource Management (HRM), Training and Development, Microcredit and Green Business Practices.

## PUBLIC INTEREST STATEMENT

Since the world is facing a global pandemic of COVID-19—a disease caused by adulterated foods—conducting research on consumers' consciousness of healthy foods, such as organic foods, has become extremely important for human survival. A large number of people in Bangladesh still violate the social distance which affect many consumers' intention to purchase organic fish. The study found that consumers' consciousness of verbal recommendations strengthens the positive relationship between that of necessary social distance to safely buy organic fish and the intention to purchase the fish. The research again suggests that only the consciousness of health benefits is positively influenced; however, a consciousness of the high price and lower availability of organic fish is negatively influenced by the consciousness of the appropriate social distance practices while purchasing such fish. Based on the empirical findings, government and concern authorities can take necessary steps to alleviate the COVID-19 pandemic.

## 1. Introduction

### 1.1. COVID-19 and fish adulteration in Bangladesh

The planet has been facing a rapidly developing global pandemic caused by the novel coronavirus disease (COVID-19) since December 2019 (Somily & BaHammam, 2020). The outbreak of the virus—for which a treatment has yet to be discovered—occurred in a seafood market in Wuhan, China. The market used to sell other animals in addition to fish (including dogs, chickens, pigs, rats and civets) in close proximity. Many fish and animals have viruses of their own. Such viruses can transfer from one species to another, so the species can become an amplifier, which significantly increases the amount of virus on the wet market. That market situation makes it easy for zoonotic diseases to transfer from animals to humans (Ben & Shawn, 2020). When the COVID-19 virus is transmitted to the human body, it spreads from person to person within a close proximity, similar to other respiratory diseases, such as the flu. Bodily fluid droplets—such as saliva or mucus—from an infected person are spread by coughing or sneezing in the air or on surfaces. Others can then come in contact with these droplets and become infected with (and even killed by) the virus by touching contaminated surfaces and then their faces (Aljazeera, 15 March Aljazeera, 2020). The World Health Organization has declared a coronavirus pandemic, with COVID-19 having spread to at least 213 countries and territories. As of 13 October 2020, there are more than 38,049,049 confirmed cases worldwide, including 1,085,482 deaths (World Health Organization, 2020a).

Thousands of markets in Bangladesh are similar to the Wuhan market and sell a wide variety of common and exotic fish. Adulteration has been prevalent in Bangladesh's fishery production and marketing chain over the last few decades (Ali, 2013; Goon et al., 2014). Bangladesh is a country that is overpopulated, surrounded by rivers and interconnected with rivers and canals. The rivers are important water sources for drinking, fish harvesting, household use, irrigation and industrial use. Approximately 80 percent of industrial units, primarily including dyeing and textile industries, do not have an effluent treatment plant in place (Islam et al., 2015) resulting the release of industrial waste into the inland water system. Thus, fish may absorb substantial amounts of metal from the water, making them contaminated (Ahmed et al., 2016).

In addition, farmed fish have recently gained a reputation as health hazards (Mohammad, 2019) due to the industry producing hybrid fish and using excessive pesticides (Main, 2020). Many traders and middlemen inject jelly, gum, water, rice starch and other substances into shrimp to raise their weight and make them appear healthier. A common practice among food vendors is to spray fish with chemical preservatives—including formalin—to improve their longevity and appearance (Goon et al., 2014; Khan, 2013). In addition, formalin and carbide are used in seafood, and oleomargarine (or lard) and DDT are added to dried fish to keep certain items fresh that are being sold openly in supermarkets (Goon et al., 2014; Hussain & Sullivan, 2013). The toxicity, long persistence, bioaccumulation and biomagnification in the food chain pose a significant threat to human and ecological health (Ali, 2013). As a result, food adulteration has been identified as one of the key reasons for the growth of cancer, liver and kidney disease in recent health-ministry research (Rahman et al., 2016).

In Bangladesh, the total number of infected cases of COVID-19 till 13 October 2020, is close to 379,738 with the death toll at 5,555 (IEDCR, 2020). In the next generation, the effects of food adulteration may be serious (Chowdhury, 2019). In order to reduce the danger of the COVID-19 pandemic—as well as the human-health hazards caused by aquatic adulteration—the consumption of organic fish should be strongly demanded. Organic food seeks to improve food production by following rigid rules and practices that observe the safety and health issues of people, plants, animals and soil (Essoussi & Zahaf, 2008). In addition, fish is the most popular food for Bangladeshi people since the country is surrounded by rivers and situated in northern part of Bay of Bengal. Fish is not a delicacy in this part of the world rather everyday millions of people consumes it.

Based on the above-mentioned facts, it can be noted that relationship between COVID-19 and handling organic fish is highly related to how marketer's and consumers can safeguard food adulteration by maintaining social distancing while purchasing or handling the fish in the market. As we know that fish is most perishable product due to their biological composition and it requires to maintain certain temperature to preserve so that it can have longer shelf life for a certain amount of time. Therefore, recognising the preeminent importance of conducting research on how to safeguard humans from fish adulteration, this study aims to investigate Bangladeshi consumers' intention to buy organic fish.

Consumers' organic food consumption research is very comprehensive. Many social and scientific studies have been conducted on the consumers' organic food purchasing intention in different countries (for example, Prince, 2019; Asif et al., 2018; Basha & Lal, 2019; Brécard et al., 2009; Buder et al., 2014; Chekima et al., 2016; Díaz et al., 2012; Hartmann & Apaolaza-Ibáñez, 2012; Hwang, 2016; Jäger & Weber, 2020; Janssen, 2018; Kapuge, 2016; Lee & Goudeau, 2014; Liu et al., 2013; Magistris & Gracia, 2008; Mann et al., 2012; Molinillo et al., 2020; Mondelaers et al., 2009; Padel & Foster, 2005; Prince & Krairit, 2017; Rana & Paul, 2017; Sampaio & Gosling, 2014; Soler et al., 2002; Tranter et al., 2009; Truong et al., 2012; Xu et al., 2012; Yadav & Pathak, 2016; Yin et al., 2010; Yu et al., 2014). However, scant studies have been conducted in the Asian context (for example, Prince, 2019; Basha & Lal, 2019; Chekima et al., 2016; Kapuge, 2016; Prince & Krairit, 2017; Truong et al., 2012; Xu et al., 2012; Yadav & Pathak, 2016; Yin et al., 2010). Therefore, for the generalisability, the study on organic foods should be conducted in South Asian context including Bangladesh.

In the existing literature, limited studies have investigated how consumers' consciousness of the attributes of organic fish impacts the number of opportunities to purchase such fish at a safe social distance, which in turn affects the intention behind purchasing the fish, and how the consciousness of verbal recommendations affect the relationship between the consciousness of necessary social distance to safely buy organic fish and consumers' intention to purchase the fish. Considering the knowledge gap, the present study generates the following research questions to investigate:

- How does consumers' consciousness of the attributes of organic fish (health benefits, high price and less availability) impact the number of opportunities to purchase organic fish at a safe social distance?
- How does consumers' consciousness of the necessary social distance to safely buy organic fish mediate the relationship between the attributes of organic fish and it the consumers' intent to purchase them?
- How does consumers' consciousness of verbal recommendations moderate the relationship between that of necessary social distance to safely buy organic fish and the intention to purchase the fish?

This research attempts to investigate all of the above issues using the theory of planned behavior and cognitive dissonance and has incorporated a new variable—social-distance purchasing—into the model. Applying these two theories and adding a new variable—social-distance purchasing—into the model, the research contributes significantly to current literature. In addition, this research enhances the external validity and generalizability of prior empirical studies conducted on organic food purchasing studies. Bangladesh is the world's fifth-largest producer of aquaculture. In the last three decades, production has increased significantly, shifting from 144,723 metric tonnes in 1986 to 2,203,554 metric tonnes in 2016—an increase of more than 15 times. But behind its success lies a trail of polluting activities that endanger its people's health and sustainable fisheries (Mohammad, 2019). The empirical findings of the current study suggest a number of strategies for the government and stakeholders that will help to alleviate fish adulteration as well as to combat COVID-19 pandemic to develop a sustainable fish industry in Bangladesh.

## 2. Literature review

The study investigates how consumers' consciousness of the attributes of organic fish impacts the number of opportunities to purchase such fish while maintaining safe social distance and how the consciousness of verbal recommendations affects the relationship between the consciousness of necessary social distance to safely buy organic fish and consumers' intention to purchase the fish. It was imperative to define the related terms and concepts pertinent to the aim of the study and therefore described below in the following sections.

### 2.1. Definition of related terms and concepts

#### 2.1.1. Adulterated food

According to Attrey (2017), "Adulterant" means, any substance that is or may be used to make the food unhealthy, inferior, misbranded, or containing extraneous matter. Food adulteration is a very old and widespread problem that is frequently seen in low-economic areas such as Bangladesh. Hazardous chemicals including sodium cyclamate, cyanide, calcium carbide, and formalin are used for ripening, keeping new, and storing green tropical fruits before they are offered. Low-cost textile dyes are used to dye vegetables, fruits, common sweetmeats, soft drinks, beverages, confectioneries to attract the attention of customers. Fishmongers retain formalin-fish to hold the body firm in order to cover up internal decomposition. These intakes of chemically modified foods can cause complex diseases and have direct implications such as liver and kidney failure, autism, metabolic dysfunctions and cancer (Mohammad et al., 2018).

#### 2.1.2. Organic food: fish

In the existing literature, definitions of organic food may vary depending on the country and context. For example, according to Canadian respondents, "organic foods are products that contain no chemical, fertiliser, genetically modified organisms, pesticides, hormones or antibiotics; are neither packaged nor processed; cause no harm to animals; require no injections for animals; are nutritious, tasty and colourful; stay fresh longer; and were produced in labour-oriented production companies" (Hamzaoui Essoussi & Zahaf, 2008). Hoefkens et al. (2009) indicated that Flemish consumers perceive organic food as less contaminated, healthier, safer and containing more nutrients than conventional food, having surveyed 529 consumers and applied statistical analysis to examine the components. In the context of France, Kouba (2003) further confirmed that "organic animal products have lower levels of veterinary drugs and pesticides".

According to the definition of organic food suggested by The Codex Alimentarius—which is a set of globally accepted food health and food quality principles, codes of practice, guidelines and other recommendations—organic food comes from an organic farm system that supports the ecosystem (Alimentarius, 2020). In the context of Bangladesh, organic fish can be referred to as "deshi", i.e. indigenous fish, that are caught in the wild or organically farmed and produced by intensive monoculture (Mohammad, 2019). From the above definitions, it can be concluded that organic fish come from the water source that relies on ecological processes and no undue chemical are applied to them. Therefore, organic fish can be referred to as safe food (Liu et al., 2013). This is the definition used in this study.

#### 2.1.3. Consciousness

Consciousness towards our eating habits has been given much consideration as a way to safeguard humans against COVID-19 (Miles, 2020). Therefore, this study considers this factor as a major aspect of the attributes of organic foods. To put it simply, this study argues that when consumers feel dissonance about whether they should buy organic or farmed fish, consumers still prefer to buy organic fish—which is the same basis of the theory of cognitive dissonance. As per the theory, when consumers feel dissonance, they may change the behaviour or attitude (Yan et al., 2008).



#### **2.1.4. Social-distancing**

Social distancing, also known as physical distancing, is the act of leaving appropriate space between people and in stores while shopping (Dickson & MacLachlan, 1990). It also means avoiding close contact with others during an infectious disease epidemic in order to mitigate exposure and reduce infectious transmission (Staff, 2020). De Vos (2020) further described social distancing as reducing interactions between individuals to slow down the spread of the virus. In the context of this study, social-distance purchasing can be described as purchasing products while consumers are at least one metre (or three feet) apart from other consumers or staff (World Health Organization, 2020b) in order to reduce the contagious transmission of COVID-19.

It was also essential to identify and examine the literature that is pertinent to the aim of the study. It is worth mentioning that a significant number of researches has been published on Covid 19 in the current literature. However, limited studies have focused on Covid 19 and organic or green food purchasing research. In the following section, the research provides a snapshot of the exiting literature on the research issues, justifying the reasons of choosing the constructs of the study under separate heading:

#### **2.2. Organic foods' attributes**

Aspects of the green movement include ecological thinking and sustainability (Dangelico & Pontrandolfo, 2010), which are the same as the bases for organic food. In addition, Liu et al. (2013) have synonymously used green food and organic food. Therefore, this study includes and reviews studies related to organic and green food–purchasing intention. It is evident that organic and green–food research is very rigorous, and many studies have dealt with important factors that affect the demand of the food (Rana & Paul, 2017). In this study, we review articles in order to select the most important and common attributes of organic food, which have been suggested by other researchers over the last three decades.

However, in the existing literature, health benefits are found one of the most important attributes of organic or green food suggested by significant number of studies.

##### **2.2.1. Health-benefit consciousness**

Health benefits are extremely important attributes that have an impact on the intention to purchase organic food, as indicated by the majority of organic food studies (Prince, 2019; Rana & Paul, 2017). For example, Hwang (2016) found that food safety concerns are key motives behind the purchase of organic food by older consumers in the US. Basha and Lal (2019) indicate that health benefits are also an important determinant that motivates Indian consumers to purchase organic food.

Magistris and Gracia (2008) applied a structural equation model (SEM) to 200 consumers and report that health issues have a positive impact on the purchasing of organic food by Italian consumers. Mondelaers et al. (2009) confirm that Flemish consumers prefer organic food for health-related reasons, as discovered during an experimental survey of 527 respondents.

The idea that consumers' intention to purchase organic food is positively linked to their health and safety issues is further supported by Truong et al. (2012), having surveyed 264 Vietnamese consumers to produce results. Sampaio and Gosling (2014) report a positive effect on the intent to purchase organic food by Brazilian consumers. Padel and Foster (2005) also indicate that the fundamental principle that drives British consumers to purchase organic foods is a balanced diet. Janssen (2018) confirms that healthiness and naturalness are the most influential drivers of organic-food consumption in Germany.

Several studies have explored the psychological aspect of health benefits—i.e. health consciousness—and investigated how it affects the intention to purchase organic food. For example, Asif et al. (2018) indicate that health consciousness is a major aspect that significantly influences the



intention of Pakistani, Turkish and Iranian consumers to buy organic food. Health consciousness is again suggested to have a major impact on the intention of Sri Lankan consumers to buy organic food, as suggested by Kapuge (2016), who applied the data of 400 consumers to a multiple linear regression model. Health consciousness significantly and positively impacts the intention to purchase organic food by Indian customers, which again is verified by Yadav and Pathak (2016). Health consciousness significantly impacts Brazilian and Spanish consumers' purchase of organic food is further confirmed by Molinillo et al. (2020). Consumers' concern about self-health is a major factor that affects Chinese consumers' intention to purchase organic food, as again indicated by Yin et al. (2010), who applied a logit model to generate results.

Few studies have investigated the positive emotional health benefits that affect the intention to purchase organic food. For instance, the idea that consumers' cognitive and affirmative interpretation of health benefits statistically and positively affects Bangladeshi consumers' intention to purchase organic meat is confirmed by Prince and Krairit (2017). Health benefits of organic food have a significant impact on the positive attitude of US consumers that leads to food loyalty, according to Lee and Goudeau (2014), who conducted a web-based survey of 725 consumers and used Amos to test their hypotheses.

From the above discussion, it is evident that health benefits of organic food are, without exception, suggested to significantly and positively influence consumers' intention to purchase the food. In addition, a number of studies have investigated the consciousness of health benefits; others have investigated the positive emotional benefits. Since the planet has been facing the global pandemic of COVID-19, which was caused by adulterated food, the importance of conducting research on purchasing safe food, i.e. organic food (Liu et al., 2013) at a safe social distance, may be extremely important for human survival. Given the above discussion, our research considered the consciousness of health benefits as a major attribute of organic food, and we have therefore integrated this variable into our model. Hence, this study hypothesises that:

*H<sub>1a</sub>: Consumers' consciousness of the health benefits of organic fish positively impacts the number of opportunities to purchase such fish at a safe social distance.*

The research again assumes that consumers' consciousness of the health benefits of organic fish will positively impact the number of opportunities to purchase such fish at a safe social distance, which in turn will affect the intention to purchase the fish. Therefore, the study argues that:

*H<sub>1b</sub>: Consumers' consciousness of the necessary social distance to safely buy organic fish positively mediates the relationship between the health benefits and the intention of purchasing the fish.*

It is worthwhile to mention that apart from health benefits, price is another major attribute suggested by many authors influencing the intention to purchase organic or green food.

#### 2.2.2. Price consciousness

Rana and Paul (2017) conducted extensive organic food studies in the context of various countries, reviewed and analysed the factors that affect the purchasing intention of organic food and proposed suggestions for future study. Yin et al. (2010) indicate that the price of organic food is an influential factor that determines Chinese consumers' intention to purchase organic food, using 432 data points to analyse their findings. Price is also an important determinant that motivates Indian consumers to buy organic food; this is further suggested by Basha and Lal (2019), who investigated key determinants of organic-food purchasing from extant research.

Several studies in the current literature indicate that consumers are willing to pay for organic food. For example, Sampaio and Gosling (2014) surveyed 560 respondents and applied SmartPLS software to analyse their data, which indicated that the perception of the price paid significantly affects Brazilian consumers' intention to purchase organic food. According to Rana and Paul (2017), willingness to pay is an important factor that influences consumers to purchase organic food. According to Yu et al. (2014), who investigated 408 Chinese consumers' willingness to pay for green food in China, consumers are willing to pay 47 percent more for green vegetables and meat than their conventional counterparts. A relationship between consumers' knowledge level and their willingness to pay for premium organic food is suggested by Díaz et al. (2012), who surveyed 361 Spanish consumers and applied a multivariate logit model to find result.

Consumers are not only prepared but willing to pay more for organic food, as further suggested by many recent studies. For instance, Brazilian and Spanish consumers are willing to pay a premium price to purchase organic food, as is confirmed by an analysis conducted by Molinillo et al. (2020) on the two socioeconomically and culturally distinct countries. Tranter et al. (2009) suggest that consumers in the UK, Denmark, Ireland, Italy and Portugal prefer to pay a premium price for organic carrots and chicken than to sacrifice quality. Consumers who prefer products with ecolabels are also willing to pay more for sea fish, as indicated by Brécard et al. (2009), who analysed 5000 consumers in Europe and applied a Probit model. Chinese consumers prefer to pay more for seafood with green labels, which is again confirmed by Xu et al. (2012), who conducted a questionnaire survey on 14 supermarkets in Beijing. Spanish consumers are willing to pay more for organic food if more reliable information about the food is offered is again suggested by Soler et al. (2002).

It is clear that the price of organic food has not always had a positive effect on the demand to purchase the food. Some studies have found price to be a moderately important attribute to purchasing organic food. For instance, price is indicated as a moderately important aspect as to why Flemish consumers prefer organic food by Mondelaers et al. (2009). Price is less necessary than organic attributes of beverages, as indicated by Mann et al. (2012), who conducted an interview survey on 404 Swiss consumers using regression and conjoint analyses. Truong et al. (2012) again indicate that Vietnamese consumers are not sensitive towards the price of the organic food.

A number of studies have further confirmed that the high prices of organic food can be an obstacle when people are deciding whether or not to purchase the food. For example, it is suggested that premium price is an obstacle of green-purchasing intention by Chekima et al. (2016), who conducted a survey on 405 Malaysian consumers and applied a robust statistical analysis (including structural equation modelling) to the data. Prince and Krairit (2017) indicate that when Bangladeshi consumers think about the price of organic meat, their intent to purchase the meat is negatively affected. Price is also a reason for German consumers not buying organic products, as indicated by Buder et al. (2014) and their quantitatively analysed data. Price is a barrier for buying the organic food in the UK; this is further indicated by Padel and Foster (2005), who interviewed 181 organic food consumers and analysed data qualitatively. Price consciousness negatively affects German consumers' intention to purchase organic food, as is further suggested by Janssen (2018), who investigated 9470 households to know the underlying motives of consuming organic food.

From the above discussion, it is clear that prices have yielded conflicting results from various studies. Some studies suggest that price is as an important determinant to purchase organic food; a number of studies have confirmed that consumers are willing to pay more for organic food. Several studies have shown that price is moderately important, some have suggested that it is a less-important factor and others have suggested that high price is an obstacle regarding the purchasing of organic food. Prince and Krairit (2017) suggest that Bangladeshi consumers' cognitive interpretation of the high price of organic food negatively influences them to purchase the food. Our study considers the consciousness of high prices as a major attribute of organic food and

has integrated this variable into its model as well. Our study assumes that consumers' consciousness of high price of organic fish will negatively impact the number of opportunities to purchase such fish at a safe social distance. This study therefore proposes that:

*H<sub>2a</sub>: Consumers' consciousness of the high price of organic fish has a negative effect on the number of opportunities to purchase such fish at a safe social distance.*

The research again suspects that consumers' consciousness of the high price of organic fish will negatively impact the number of opportunities to purchase such fish at a safe social distance, which in turn will affect the consumers' intention to purchase the fish. Hence, the study hypothesises that:

*H<sub>2b</sub>: Consumers' consciousness of the necessary social distance to safely buy organic fish negatively mediates the relationship between high prices and the intent to purchase the fish.*

The current study further found that availability is an important attribute affecting the consumers' intention to purchase organic or green food.

### 2.2.3. Availability consciousness

Many authors suggest that the availability of organic food significantly influences consumers to purchase the food (Prince, 2019; Rana & Paul, 2017). For instance, Mangafić et al. (2017) apply a PROCESS macro in SPSS to the data from 173 respondents, which suggests that availability has a direct impact towards the intention to purchase organic food in Bosnia and Herzegovina. By surveying 817 German consumers across the country, Buder et al. (2014) found that a lack of availability is a reason for German consumers not buying organic products. Prince and Krairit (2017) suggest that consumers' cognitive and affirmative interpretation of the availability of organic meats positively impacts Bangladeshi consumers' intention to purchase the meat. Sampaio and Gosling (2014) also indicate that the availability of organic food statistically and positively affects Brazilian consumers' intention to purchase the food.

It is evident that the availability of organic food has a positive effect on consumers' intention to purchase the food. In contrast, we argue that a lack of availability of organic food could discourage consumers from buying the food at a safe social distance. In Bangladesh, there is a huge gap between the ratio of farmed and organic fish production, which (as of 2019) was 15:1 (Mohammad, 2019). In view of this, our study considers the consciousness of less availability as a major attribute of organic food and has integrated this attribute into its model, further arguing that a lack of availability of organic fish would discourage consumers from buying the fish at a safe social distance. Thus, the study expects that:

*H<sub>3a</sub>: Consumers' consciousness of less availability of organic fish has a negative effect on the number of opportunities to purchase such fish at a safe social distance.*

The research again speculates that consumers' consciousness of less availability of organic fish will negatively impact the number of opportunities to purchase such fish at a safe social distance, which in turn will affect their intent to purchase the fish. Hence, the study proposes that:

*H<sub>3b</sub>: Consumers' consciousness of the necessary social distance to safely buy organic fish negatively mediates the relationship between less availability and an intention to purchase the fish.*

Notably, social-distance purchasing—a new variable has been added into the organic or green food consumption research in the current research.

#### 2.2.4. *Social-distance purchasing: consciousness*

Since the spread of COVID-19 virus in March 2020, social distancing has become a new norm (De Vos, 2020). As the pandemic is very recent, limited studies have examined the effect of social-distance purchasing in organic food-consumption research. Buchan et al. (2006) examined social distance (as well as communication and culture) between cross-cultural and international contexts. De Vos (2020) again mentioned the side effects of social distancing on Chinese people after the country had fallen into the pandemic crisis. The Government of Bangladesh has also been instructing social distancing between individuals since March 2020 (S H, 2020). However, limited studies have examined the importance of maintaining social-distance while purchasing in consumers' organic food consumption research. Therefore, this study has added social-distance purchasing into its model and also conjectures that consumers' consciousness of the necessary social-distance to safely buy organic fish will affect their intention to purchase the fish. The study therefore hypothesises as follows:

*H<sub>4</sub>: Consumers' consciousness of the necessary social distance to safely buy organic fish has a direct effect on their intention to purchase the fish.*

In addition, verbal recommendations found to be one of the important attributes influencing consumers' intention to purchase organic or green food.

#### 2.2.5. *Verbal-recommendation consciousness*

In prior studies, different authors have used the term verbal recommendations in different ways. For example, Prince and Krairit (2017) indicate that verbal recommendations of organic meat statistically and positively affect Bangladeshi consumers' intention to purchase the meat. Jäger and Weber (2020), who investigated the data of 297 consumers and analysed them quantitatively, suggest that advertising is a key determinant of German consumers' willingness to purchase organic food. Hartmann and Apaolaza-Ibáñez (2012) applied ANOVA and Cronbach's alpha to 726 respondents and suggest an emphasis on advertisement campaigns.

On the contrary, Kapuge (2016) indicated that a reference group does not have any statistically positive and significant impact on the intention to purchase organic food in Sri Lanka.

While studies regarding verbal recommendations provided contradictory results, this research includes the variable in the model to analyse whether it is important for the intention to purchase. In addition, Zhang et al. (2018) confirm that word of mouth moderates the relationship between green washing perception and the intention to purchase green food in China. However, limited studies have suggested that verbal recommendation moderates in green or organic food consumption research. Therefore, our study attempts to investigate whether the consciousness of verbal recommendations moderates the purchase of organic food at a safe social distance. This study, therefore, argues that consumers' consciousness of verbal recommendations will moderate the relationship between the number of opportunities to purchase organic fish at a safe social distance and their intention to purchase such fish, and therefore proposes the following:

*H<sub>5</sub>: Consumers' consciousness of verbal recommendations moderates the relationship between that of necessary social distance to safely buy organic fish and the intention to purchase the fish.*

### 2.3. Rationale for choosing the main theories

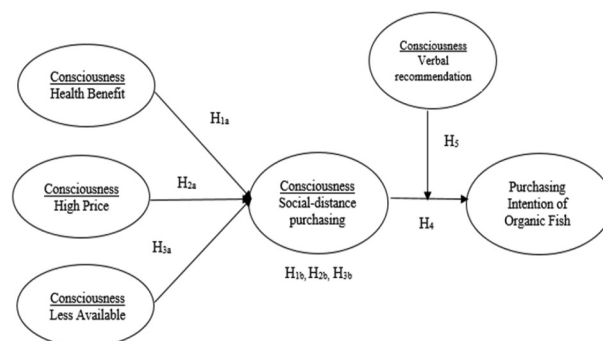
Many organic food-consumption studies have considered the theory of reasoned action and planned behaviour as the main theory of their studies (Aitken et al., 2020; Basha & Lal, 2019; Lee & Goudeau, 2014; Mangafić et al., 2017; Ramayah et al., 2010; Sreen et al., 2018; Wang et al., 2020; Yadav & Pathak, 2016; Zhu et al., 2013). In addition, Prince and Krairit (2017) employ the theory of cognitive dissonance to investigate how organic food's attributes and consumers' psychology together affect consumers' intention to purchase organic food.

Consciousness has been given the highest priority of protecting humans against COVID-19 (Miles, 2020). Considering the supreme importance of conducting research on COVID-19, our study incorporates the cognitive dissonance theory, which explains consumer inconsistencies related to attitudinal changes or behavioural decisions (Yan et al., 2008). Our study also includes the planned behaviour that is primarily used in organic food purchase research. Applying the two theories to the conceptual model of the study add a significant contribution to the literature on organic food-purchasing behaviour.

### 2.4. Conceptual model

Based on the above discussion, the study has developed the following conceptual model and associated hypotheses Figure 1:

Figure 1. Conceptual model.



This study selected the attributes of organic food by first identifying the most common attributes used by other researchers. Table 1 shows the original sources of literature from where the constructs of study have been developed.

Table 1 shows that the health benefits have been suggested to have a significant and positive impact on the consumer's intention to purchase organic food. Nevertheless, numerous studies have yielded contradictory results in terms of price, availability and verbal recommendation. In addition, limited studies have investigated social-distance purchasing in organic or green food purchasing research. However, our study considers these variables to investigate whether they have an impact on the intention to purchase organic fish in Bangladesh. The study concludes that—although literature pertaining to consumers' organic- or green-food consumption is very comprehensive—limited studies have investigated how consumers' consciousness for health benefits, high price and less availability influence the number of opportunities to purchase organic fish at a safe social distance. This in turn affects their intent to purchase the fish and how consumers consciousness of verbal recommendations affect the relationship between that of necessary social distance to safely buy organic fish and the intention to purchase the fish. This research attempts to investigate all of the above issues using the theory of planned behaviour and cognitive dissonance. Applying these two theories and adding a new variable—i.e. social-distance purchasing—into the model, the research contributes significantly to current literature. In addition, this research enhances the external validity and generalizability of prior empirical studies conducted on consumers' organic-food purchasing behaviour.

**Table 1. Summary of the literature of organic foods' attributes**

Organic foods' attribute	Author(s) suggested	Author(s) did not suggest
Health benefit	Rana & Paul, 2017; Prince, 2019; Hwang, 2016; Basha & Lal, 2019; Magistris & Gracia, 2008; Mondelaers et al., 2009; Truong et al., 2012; Sampaio & Gosling, 2014; Padel & Foster, 2005; Janssen, 2018; Asif et al., 2018; Kapuge, 2016; Yadav & Pathak, 2016; Molinillo et al., 2020; Yin et al., 2010; Prince & Krairit, 2017; Lee & Goudeau, 2014; Liu et al., 2013	
Price	Sampaio & Gosling, 2014; Rana & Paul, 2017; Yu et al., 2014; Díaz et al., 2012; Molinillo et al., 2020; Tranter et al., 2009; Brécard et al., 2009; Xu et al., 2012; Soler et al., 2002; Mondelaers et al., 2009; Basha & Lal, 2019	Mann et al., 2012; Truong et al., 2012; Chekima et al., 2016; Prince & Krairit, 2017; Padel & Foster, 2005; Janssen, 2018; Buder et al., 2014
Availability	Rana & Paul, 2017; Mangafić et al., 2017; Buder et al., 2014; Prince & Krairit, 2017; Sampaio & Gosling, 2014	
Social-distance purchasing		
Verbal recommendation	Prince & Krairit, 2017; Jäger & Weber, 2020; Hartmann & Apaolaza-Ibañez, 2012.	Kapuge, 2016

## 2.5. Main theories and the model

As per the theory of cognitive dissonance developed by Leon Festinger: when consumers feel dissonance, they may change their behaviour or attitude. Cognitive interpretation is concerned with understanding mental processes—such as memory, perception, thinking and problem-solving abilities—and how they may be related to behaviour (Yan et al., 2008). They can be operationalised by measuring the level of consumers' belief, knowing, awareness, understanding and behaviours.

The theory of reasoned action of planned behaviour given by Ajzen (1991) states that an individual's behaviour is guided by three kinds of application: individual attitude, others' normative expectations and perceived control over the action. The theory explains that a combination of a more positive attitude towards behaviour, higher subjective norms and greater control over the action strengthens the intention to perform the action (Ajzen, 1991).

Each aspect of the construct of the conceptual model incorporates the theory cognitive dissonance by evaluating the level of consumers' belief, knowing, awareness, understanding and behaviours whether to purchase organic food or otherwise. The study also assumes that when Bangladeshi consumers interpret the attributes of organic fish such as health benefit, high price, less availability and verbal recommendations are more effective in maintaining social distance to safely buy organic fish.

In contrast, when the variables of the study are plotted in the form of a conceptual model, this represents the theory of reasoned action of planned behaviour. As mentioned above the theory of reasoned action of planned behaviour is guided by three forms of application: individual attitude, others' normative expectations and perceived control over the action. The conceptual model of the study is also driven by three forms of application: consumers' consciousness of the attribute of organic fish, consciousness for verbal recommendations (individual attitude), consciousness of



necessary social distance to safely buy the fish (others' normative expectations), and intention to purchase organic fish (perceived control over the action).

The theory of reasoned action of planned behaviour explains that a combination of a more positive attitude towards behaviour, higher subjective norms and greater control over the action strengthens the intention to perform the action. Likewise, the study's conceptual model also indicates that the more the positive consciousness for the organic foods' attributes, verbal recommendations and social distance to safely buy organic fish, the greater the intention to purchase the fish. Thus it can be stated that this is how the study incorporated the theory of cognitive dissonance as well as the theory of reasoned action of planned behaviour into the model.

### **3. Methodology**

The methodology of this study presents the overall research framework, including methods of developing the questionnaire, the measures of the participants' response relating to the research questions as well as samples and data collection of the study. It also explains the underlying reasons for these decisions.

#### **3.1. Development of questionnaire**

To develop the research questionnaire, the authors used a three-pronged (literature review, expert interview and survey) approach (Jitrawang & Krairit, 2019). First, the authors reviewed research on consumers' organic or green-purchasing behaviour to gather ideas, concepts and hypotheses and to build an initial questionnaire. Second, the authors consulted relevant experts about the initial questionnaire and obtained their advice and feedback in order to refine it and to ensure that it covered all necessary aspects of the model. Finally, a pilot survey was performed on the target population to test if the questionnaire worked well among customers. These three measures were carried out iteratively to achieve the optimal questions before the actual survey. A 7-point Likert scale was used to administer the questionnaire survey.

#### **3.2. Measures**

##### **3.2.1. Consciousness of health benefit**

Consumers' consciousness of health benefit was measured using eight items frequently used in previous studies and proposed in the pilot study (e.g., positiveness in the core benefit of organic fish, trust that organic fish is less polluted than other meat, believe that organic fish is safe, know that organic fish is less contaminated than other fish, confidence in the health benefits of organic fish, interest in the quality of the organic fish, aware that organic fish is nutritious, satisfied with the features of organic fish).

##### **3.2.2. Consciousness of high Price**

The research included six items to assess how much the price of the organic fish is reasonable to the consumers (e.g., belief that fish price does not offer much value for money, know that the price of the fish is not influential, belief that the fish price is not fair, doubt in fish price offering value for money, disinterest in fish's price, dissatisfied with the value for the fish price).

##### **3.2.3. Consciousness for less availability**

The research used six items suggested by current literature and also in the pilot survey stage to assess consumer perception of less availability of organic fish (e.g., doubt in organic fish's availability, dissatisfied with organic fish's production, know that organic fish's production is inadequate, experience on less available types of organic fish, believe that the organic fish is less available, least interest in types of organic fish's availability).

##### **3.2.4. Consciousness of social distance purchasing**

To measure the consumers' consciousness of social distance purchasing the research used six items (e.g., know that customers do not keep social distance while purchasing, noticed that



customers cough and or sneeze when they purchase, experience that customers do not stay 2 meters away from others when shopping, fear that the purchasing does not guarantee social distancing, concern that customers' bodily fluid droplets—such as saliva or mucus may spread when purchasing, anxiety that COVID-19 virus can be transmitted to your body while purchasing).

### 3.2.5. *Consciousness of verbal recommendations*

Consumers' consciousness of verbal recommendation was evaluated using the six items proposed in the current literature and the pilot study as well (e.g., trust on reference group, concern about references' recommendation, positiveness in references' conversation, interest in references' recommendation, trust in references' conversation, satisfied with references' preferences).

### 3.3. *Population and sampling*

It is evident that only handful of studies have been conducted on organic food purchasing field in Asian context (for example, Prince, 2019; Basha & Lal, 2019; Chekima et al., 2016; Kapuge, 2016; Prince & Krairit, 2017; Truong et al., 2012; Xu et al., 2012; Yadav & Pathak, 2016; Yin et al., 2010), for generalisability, more study on organic foods should be conducted in South Asian context including Bangladesh. Therefore, this research focuses on Dhaka, the capital of Bangladesh, which has a population of 15 million (Bangladesh Bureau of Statistics, 2015). To collect data, the research used stratified random sampling in which the population is divided into strata, or subgroups, and then participants are selected proportionately from different strata (Mason et al., 1999).

To get the more accurate data, the study used stratified random sampling which facilitates the researchers to retrieve a respondents sample that best represents the overall population under the study by segmenting them into subgroups. By estimating more accurately each of the component parts, the researcher get more precise estimates for each stratum ensure stratified sampling results in more reliable and detailed information (Kothari, 2004).

The research used organisations with different levels of income—i.e. high, upper-middle and middle—as strata. In an organisation, different types of people with different ranks and incomes work together. Although each organisation is situated in a particular place, the workers reside in different districts and locations throughout the city. As stated, by selecting different types of organisations, this study has ensured a cross section of high, upper middle and middle-income groups of respondents in different districts of Dhaka.

The survey was conducted from March–June 2020. The study collected data from 400 respondents from the Ministry of Government of Bangladesh; the High Commission; multinational companies; the Centre for Management Development; the Agribusiness for Trade Competitiveness Project; public and private universities; foreign, public and private schools; real estate companies; colleges; news subscribers; and national and foreign NGOs. In addition, consumers from supermarkets and various people across different parts of Dhaka have been surveyed in this study.

As stated earlier that the ratio of farmed and organic fish production in Bangladesh is 15:1 (Mohammad, 2019), the number of regular organic fish consumers in the country is also far less than that of farmed fish consumers. Initially the study gathered 400 questionnaire who regularly purchase organic fish. After being carefully assessed, the study rejected the data from 80 participants and accepted that of 320 participants for analysis in this study.

## 4. *Result*

### 4.1. *Descriptive statistics*

Table 2 which reveals the descriptive statistics of the respondents shows that the study has information from 320 respondents. Most of the respondents have a maximum age in between 24–29 and minimum 60 or above. Table 2 again indicates that 72% of the respondents are male and the rest are female. As far as education qualification is concerned, the highest number of

respondents holds a Master's degree, and the lowest is the vocational degree. Furthermore, Table 1 indicates that the largest number of respondents are married and only a few are divorced. Many respondents have a maximum 6 family members with 4 children and an average monthly income of taka in between 41,000–60,999. All of the above metrics have a mean and standard deviation of maximum 3.3144 and 1.6808.

**Table 2. Descriptive statistics of the respondents**

	Obs	Max	Min	Mean	Std. deviation
Age	320	24–29	60 or above	3.1344	1.68082
Gender	320	72.20% (male)	27.80% (female)	1.2781	.44878
Highest education	320	Masters	Vocational degree	4.30	1.028
Marital status	320	Married	Divorce	1.4063	.56321
Number of children	320	4	0	.9844	1.19156
Family size	320	6	1	4.3875	1.41194
Family income	320	41,000–60,999	101,000 or more	3.0813	1.57158

#### 4.2. Confirmatory factor analysis

The IBM SPSS Amos Version 21 was used for conducting a confirmatory factor analysis in order to validate the measurement model. The model generated five latent constructs with a good model fit:  $\chi^2 = 1433.245$ ,  $df = 882$ ,  $p = 0.000$ ,  $\chi^2/df = 1.625$ , AGFI = .849; PCFI = 0.838 CFI = .943 (see Table 3).

**Table 3. Model fit (CFA)**

Structural model	Cut-off value	Fit statistics
$\chi^2$		1433.245
Df		882
P	< 0.05	.000
$\chi^2/df$	2 to 5	1.625
AGFI	.8	.849
PCFI	>0.7	.838
CFI	0.9	.943

(Chang & Chang, 2017; Prince, 2018; Wahid & Hyams-Ssekasi, 2018)

Following the revision of the model based on the above parameters, the confirmatory factor analysis findings (see Table 4) indicate that all factor loadings surpass the threshold value of 4 and are statistically significant ( $p < 0.001$ ) (Anderson & Gerbing, 1988). Each construct's alpha ( $\alpha$ ) value is also above the acceptable value of 0.7 (Pallant, 2013). The composite reliability values of each construct also surpass the threshold value of 0.60, showing strong internal consistency for each construct's objects (Teng & Lu, 2016).

**Table 4. The CFA components**

	Estimate	S.E.	P	Std factor loading	$\alpha$	Composite reliability
<b>Consciousness of health benefit (CnsHealthBenft)</b>						
1. Positiveness in the core benefit of organic fish	1			0.71	0.821	0.9
2. Trust that organic fish is less polluted than other meat	0.831	0.092	***	0.58		
3. Believe that organic fish is safe	0.87	0.089	***	0.64		
4. Know that organic fish is less contaminated than other fish	0.602	0.09	***	0.43		
5. Confidence in the health benefits of organic fish	0.636	0.08	***	0.51		
6. Interest in the quality of the organic fish	0.92	0.088	***	0.65		
7. Aware that organic fish is nutritious	0.704	0.085	***	0.54		
8. Satisfied with the features of organic fish	0.958	0.095	***	0.67		
<b>Consciousness of verbal recommendations (CnsVerbalRec)</b>						
1. Trust on reference group	1			0.80	0.904	0.91
2. Concern about references' recommendation	1.06	0.057	***	0.81		

(Continued)

Table 4. (Continued)

	Estimate	S.E.	P	Std factor loading	$\alpha$	Composite reliability
3. Positiveness in references' conversation	0.975	0.063	***	0.81		
4. Interest in references' recommendation	0.947	0.062	***	0.80		
5. Trust in references' conversation	0.8	0.063	***	0.69		
6. Satisfied with references' preferences	0.788	0.058	***	0.73		
<b>Consciousness of high Price (CnsPrice)</b>						
1. Belief that fish price does not offer much value for money	1			0.72	0.904	0.88
2. Know that the price of the fish is not influential	1.033	0.072	***	0.70		
3. Belief that the fish price is not fair	1.095	0.07	***	0.75		
4. Doubt in fish price offering value for money	1.19	0.092	***	0.80		
5. Disinterest in fish's price	1.197	0.091	***	0.80		
6. Dissatisfied with the value for the fish price	1.176	0.091	***	0.80		
<b>Consciousness of social distance purchasing (CnsSocDisPurchase)</b>						
1. Know that customers do not keep social distance while purchasing	1			0.81	0.862	0.89

(Continued)

Table 4. (Continued)						
	Estimate	S.E.	P	Std factor loading	$\alpha$	Composite reliability
2. Noticed that customers cough and or sneeze when they purchase	0.862	0.06	***	0.75		
3. Experience that customers do not stay 2 meters away from others when shopping	0.916	0.059	***	0.80		
4. Fear that the purchasing does not guarantee social distancing	0.889	0.061	***	0.76		
5. Concern that customers' bodily fluid droplets—such as saliva or mucus may spread when purchasing	0.688	0.061	***	0.62		
6. Anxiety that COVID-19 virus can be transmitted to your body while purchasing	0.61	0.061	***	0.56		
<b>Consciousness for less availability (CnsAvailability)</b>						
1. Doubt in organic fish's availability	1			0.75	0.881	0.88
2. Dissatisfied with organic fish's production	1.031	0.066	***	0.78		
3. Know that organic fish's production is inadequate	0.93	0.079	***	0.72		

(Continued)

**Table 4. (Continued)**

	<b>Estimate</b>	<b>S.E.</b>	<b>P</b>	<b>Std factor loading</b>	<b><math>\alpha</math></b>	<b>Composite reliability</b>
4. Experience on less available types of organic fish	0.894	0.079	***	0.70		
5. Believe that the organic fish is less available	0.918	0.077	***	0.70		
6. Least interest in types of organic fish's availability	1.057	0.079	***	0.80		

**Note** \*\*\*p < 0.001; N 320

#### 4.3. Structural equation model

The study then performed the structural equation model (SEM) with Amos Version 21 to find the relation between the five constructs. The SEM represents acceptable fit:  $\chi^2 = 790.718$ ,  $df = 327$ ,  $p = 0.000$ ,  $\chi^2/df = 2.418$ , AGFI = 0.807; PCFI = 0.771, RMSEA = 0.067 (see Table 5).

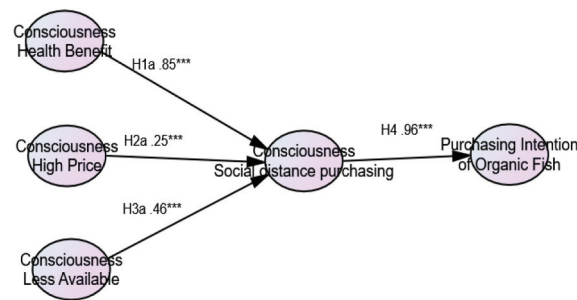
**Table 5. Model fit (SEM)**

Structural model	Cut-off value	Fit statistics
$\chi^2$		790.718
Df		327
P	< 0.05	.000
$\chi^2/df$	2 to 5	2.418
AGFI	.8	.807
PCFI	>0.7	0.771
RMSEA	Between > 0.05 to < 0.08	.067

(Chang & Chang, 2017; Prince, 2018; Wahid & Hyams-Ssekasi, 2018)

Then the study ran Amos Graphics, which is shown in the following Figure 2:

**Figure 2. The structural equation model.**



The result of the SEM suggests that at the  $p < 0.05$  significance level, consumers' consciousness for health benefit ( $H_{1a}$ ) is statistically and positively associated with that of social distance to safely buy organic fish. The findings further show that consciousness of high price ( $H_{2a}$ ) and less availability ( $H_{3a}$ ) are statistically and negatively associated with that of social distance to safely buy organic fish. The results again confirmed that consumers' consciousness of social distance to safely buy organic fish ( $H_4$ ) has a significant impact towards their intention to purchase such fish.

#### 4.4. Mediation test

In order to test whether consumers' consciousness of social distance to safely buy organic fish positively mediates the relationship between that of health benefits ( $H_{1b}$ ) and negatively mediates those of high price ( $H_{2b}$ ) and less availability ( $H_{2b}$ ) against their intention to purchase the fish, the study conducted Hayes Process v3.3 Macro (in SPSS) for mediation analysis.

Table 6 shows that the positive path from the consciousness of health benefits (CnsHealthBenft) to that of social distance to safely buy organic fish (CnsSocDisPurchase) is positive and statistically significant ( $b = .4274$ ,  $s.e. = .0561$ ,  $p = <.001$ ). The direct effect of consciousness of social distance to safely buy organic fish (CnsSocDisPurchase) on the intent to purchase organic fish is positive and significant ( $b = .2435$ ,  $s.e. = .0385$ ,  $p = <.001$ ). A non-parametric bootstrapping is used to test the



indirect effect. In order to have a significant indirect effect, the 95% CI should indicate an absence of zero. The result of the test shows that the indirect effect ( $IE = .1433$ ) is significant: 95% CI = .0844,.2216) (Mike, 2019). Therefore, the first mediation test ( $H_{1b}$ ) indicates that consumers' consciousness of social distance to safely buy organic fish positively and significantly mediates the relationship between that of health benefit and of the intent to purchase the fish.

**Table 6. Mediation test results**

H <sub>1b</sub>						
Model	coeff	s.e	P	Effect	Boot LLCI	Boot ULCI
CnsHealth Benft	0.4274	0.0561	.000	.1433	0.0844	0.2216
CnsSocDis Purchase	0.2437	0.0385	.000			
H <sub>2b</sub>						
Model	coeff	s.e	P	Effect	Boot LLCI	Boot ULCI
CnsPrice	0.0775	0.0331	.020	.0857	0.0417	0.1382
CnsSocDis Purchase	0.3337	0.04	.000			
H <sub>3b</sub>						
Model	coeff	s.e	P	Effect	Boot LLCI	Boot ULCI
Cns Availability	0.1901	0.0399	.000	0.1178	0.0741	0.1743
CnsSocDis Purchase	0.2755	0.0413	.000			

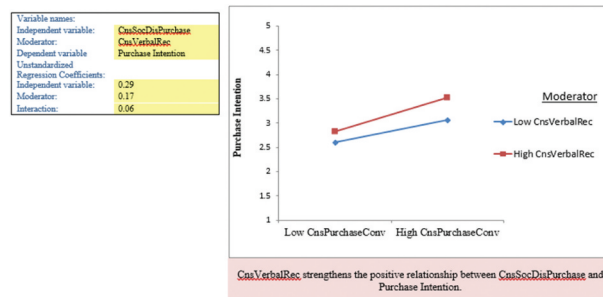
Table 6 further indicates that the negative path from the consciousness of high price to that of social distance to safely buy organic fish (CnsSocDisPurchase) is positive and statistically significant ( $b = .0775$ ,  $s.e. = .0331$ ,  $p = .02$ ). The direct effect of consciousness of social distance to safely buy organic fish (CnsSocDisPurchase) on the intention to purchase organic fish is also positive and significant ( $b = .3337$ ,  $s.e. = .0400$ ,  $p = <.000$ ). Furthermore, the indirect effect ( $IE = .0857$ ) is significant: 95% (CI = .0417, .1382) as the result excludes zero (Mike, 2019). Therefore, the second mediation test ( $H_{2b}$ ) indicates that consumers' consciousness of social distance to safely buy organic fish negatively and significantly mediates the relationship between that of high price and the intention to purchase organic fish.

According to Table 6, the negative path from the consciousness of less availability (CnsAvailability) to that of social distance to safely buy organic fish (CnsSocDisPurchase) is positive and statistically significant ( $b = .1901$ ,  $s.e. = .0399$ ,  $p = <.000$ ). The direct effect of consciousness of social distance to safely buy organic fish (CnsSocDisPurchase) on the intention to purchase organic fish is also positive and significant ( $b = .2755$ ,  $s.e. = .0413$ ,  $p = <.001$ ). Furthermore, the indirect effect ( $IE = .1178$ ) is significant: 95% (CI = .0741, .1743), as the result excludes zero (Mike, 2019). Therefore, the third mediation test ( $H_{3b}$ ) indicates that consumers' consciousness of social distance to safely buy organic fish negatively mediates the relationship between that of less availability and the intention to purchase organic fish.

#### 4.5. Moderation test

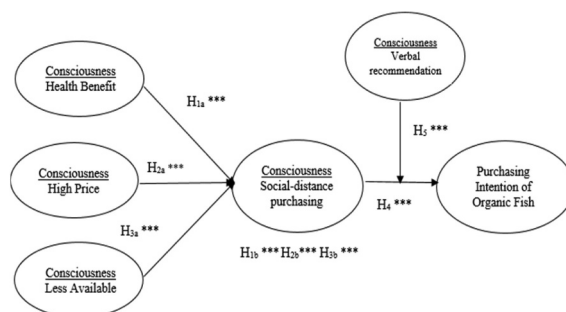
The study conducted the moderation test in order to find whether the consciousness of verbal recommendation moderates (reinforces or weakens) the relationship between that of social distance to safely buy organic fish and of the intention to purchase the fish ( $H_5$ ) (see Figure 3).

**Figure 3. Moderation test.**



The above moderating test results (Figure 4) indicate that consciousness of verbal recommendation (CnsVerbalRec) moderates (strengthens) the positive relationship between that of social distance to safely buy organic fish (CnsSocDisPurchase) and the intention to purchase the fish ( $H_5$ ) (unstandardised regression coefficients of independent variable of 0.29, moderator of 0.17 and interaction of  $-0.06$  with intercept value of 3) (Wahid & Hyams-Ssekasi, 2018).

**Figure 4. Results of the study.**



The study has drawn the following model from the results of the above analyses.

The study produces the following table showing all the results of analyses:

It is evident that each finding of the study mentioned in the Table 7, reflects the theory of cognitive dissonance as the finding evaluates the level of consumers' belief, knowing, awareness, understanding and behaviours whether to purchase or not organic fish. In contrast, when we plot all the findings of the study in the form of the conceptual model, it illustrates the theory of reasoned action and planned behaviour as the model indicates that more positive consciousness for the organic foods' attributes, verbal recommendations (individual attitude) and maintaining safe social distance while buying organic fish (others' normative expectations), the greater the intention to purchase the fish (perceived control over the action). Although, the current study found that only the consciousness of health benefits is positively mediated; however, a consciousness of the high price and lower availability of organic fish is negatively mediated by the consciousness of the appropriate social distance practices while purchasing organic fish. Therefore, the study suggests appropriate strategies such as lowering the price, promoting plenty of organic fish as well as enhancing the organic fish's verbal recommendations for improving such fish market as mentioned in the section below.

**Table 7. Hypotheses test result**

<b>Hypothesis</b>	<b>Relationship</b>	<b>Result</b>
H <sub>1a</sub>	<i>Consumers' consciousness of the health benefits of organic fish positively impacts the number of opportunities to purchase such fish at a safe social distance</i>	Supported
H <sub>1b</sub>	<i>Consumers' consciousness of the necessary social distance to safely buy organic fish positively mediates the relationship between the health benefits and the intention of purchasing the fish.</i>	Supported
H <sub>2a</sub>	<i>Consumers' consciousness of the high price of organic fish has a negative effect on the number of opportunities to purchase such fish at a safe social distance.</i>	Supported
H <sub>2b</sub>	<i>Consumers' consciousness of the necessary social distance to safely buy organic fish negatively mediates the relationship between high prices and the intent to purchase the fish.</i>	Supported
H <sub>3a</sub>	<i>Consumers' consciousness of less availability of organic fish has a negative effect on the number of opportunities to purchase such fish at a safe social distance.</i>	Supported
H <sub>3b</sub>	<i>Consumers' consciousness of the necessary social distance to safely buy organic fish negatively mediates the relationship between less availability and an intention to purchase the fish.</i>	Supported
H <sub>4</sub>	<i>Consumers' consciousness of the necessary social distance to safely buy organic fish has a direct effect on their intention to purchase the fish.</i>	Supported
H <sub>5</sub>	<i>Consumers' consciousness of verbal recommendations moderates the relationship between that of necessary social distance to safely buy organic fish and the intention to purchase the fish.</i>	Supported

## 5. Discussion

The study aims to investigate how consumers' consciousness of the attributes of organic fish impacts the number of opportunities to purchase such fish at a safe social distance, which in turn affects the intention behind purchasing the fish, and how the consciousness of verbal recommendations affect the relationship between the consciousness of necessary social distance to safely buy organic fish and consumers' intention to purchase the fish. All of these issues have been examined using the theory of planned behaviour and cognitive dissonance.

The present study indicates that consumers' consumers' consciousness of social distance to safely buy organic fish has a direct effect on their intention to purchase the fish (H<sub>4</sub>). Limited studies have investigated this variable—i.e. social-distance purchasing—in organic food consumption research. From a methodological viewpoint, the study has added a new dimension to the

current literature on organic food consumption. It is noted that a large number of people in Bangladesh is still unaware about the danger of COVID-19 pandemic and frequently violate the social distance, which is a much-needed prevention measure for novel coronavirus (S H, 2020). In addition—apart from supermarkets—municipal corporate markets, roadside stores and temporary open-air stores are congested and seriously lacking basic sanitation facilities. At these locations, consumers do not maintain the necessary social distancing to avoid being infected by COVID-19. Therefore, government and mobile courts should strictly enforce legal actions—such as monetary punishment, imprisonment, closing down the fish outlet or cancellation of trade licence—as a safety measures against coronavirus. In addition, municipal corporation markets should be made more spacious with improved sanitation and car-parking facilities to encourage social distancing.

The present study found that consumers' consciousness of the health benefits of organic fish positively impacts the number of opportunities to purchase such fish at a safe social distance ( $H_{1a}$ ). This finding is consistent with Rana and Paul (2017), Prince and Krairit (2017), Hwang (2016), Basha and Lal (2019), Magistris and Gracia (2008), Mondelaers et al. (2009), Truong et al. (2012), Sampaio and Gosling (2014), Padel and Foster (2005), Janssen (2018), Asif et al. (2018), Kapuge (2016), Yadav and Pathak (2016), Molinillo et al. (2020), Yin et al. (2010), and Lee and Goudeau (2014). It is evident that the adulteration of food—including fish—is a serious issue in Bangladesh. Organic fish, which is considered a healthy food (Liu et al., 2013), will act as a safeguard against COVID-19 to protect humans (Miles, 2020). Since the outbreak of the global COVID-19 pandemic, consumers around the world—especially those in Bangladesh—are more conscious of consuming healthy food, like organic fish. Hence, the consciousness of the health benefits of organic fish positively influences Bangladeshi consumers to purchase the fish at a safe social distance.

Our study confirmed that consumers' consciousness of the high price of organic fish has a negative effect on the number of opportunities to purchase such fish at a safe social distance. ( $H_{2a}$ ). The result is consistent with Mann et al. (2012), Truong et al. (2012), Chekima et al. (2016), Prince and Krairit (2017), Padel and Foster (2005), Janssen (2018), and Buder et al. (2014). However, the results of our study contradict the results of Sampaio and Gosling (2014), Rana and Paul (2017), Yu et al. (2014), Díaz et al. (2012), Molinillo et al. (2020), Tranter et al. (2009), Brécard et al. (2009), Xu et al. (2012), Soler et al. (2002), Mondelaers et al. (2009), and Basha and Lal (2019). In Bangladesh, costs of organic fish—which are less available throughout the country—are very high for consumers. In addition, many organic-fish sellers may often ask for a high price in order to increase profits. Due to all these reasons, organic fish are very expensive in Bangladesh. The government and the authorities concerned can therefore encourage organic-fish producers and marketers to reduce the price of fish. Solutions may include facilitating loans, providing subsidiaries or setting up proper supply chains. In addition, the government can also monitor and control the selling price of organic fish in such a way that it becomes a reasonable option for the consumer. The reduced price will therefore stimulate consumer consciousness, which will effectively increase consumers' intention to purchase organic fish at a safe social distance.

The current study further suggests that consumers' consciousness of less availability of organic fish has a negative effect on the number of opportunities to purchase such fish at a safe social distance ( $H_{3a}$ ). This finding is consistent with Rana and Paul (2017), Mangafić et al. (2017), Buder et al. (2014), Prince and Krairit (2017), and Sampaio and Gosling (2014). Bangladesh is considered to be one of the most plentiful fishing regions in the world. In order to increase the production of organic fish, a number of steps should be taken by the government and the authorities concerned. This includes growing the total aquatic aquaculture, increasing open-air fishing, ensuring access to organic fish farming by poor and genuine fishermen, accelerating aquaculture, developing techniques to support fisheries science, disseminating new technologies through enhanced extension services, promoting the private sector and enhancing the marketing of fish and processing systems (Shamsuzzaman et al., 2017).

The research again suggests that only the consciousness of health benefits is positively mediated ( $H_{1b}$ ); however, consciousness of high price ( $H_{2b}$ ) and less availability ( $H_{3b}$ ) of organic fish are negatively mediated by the consciousness of the appropriate social distance practices while purchasing such fish. The mediating variable explains why and how a certain effect occurs (Baron & Kenny, 1986). The study therefore argues that, while consumers' consciousness of health benefits has a positive influence, the high prices and lack of availability of organic fish prevent consumers from purchasing the fish maintaining a social distance at the expected level. It is evident that—since organic fish are scarce in Bangladesh, but many customers want to buy them—the price of the fish is high; this is the basis of the theory of supply and demand (Barro, 1972). Therefore, there is a desperate need to increase organic fish production and lower the fish price, allowing consumers in Bangladesh to find available fish and buy them at an affordable price, potentially saving their lives from COVID-19.

The study further indicates that consumers' consciousness of verbal recommendations of organic fish moderates (strengthens) the relationship between that of necessary social distance to safely buy organic fish and the intention to purchase the fish ( $H_5$ ). A moderating variable explains when a certain effect occurs (Baron & Kenny, 1986). It affects the direction or strengthens the relationship between a dependent and an independent variable. Our study's results are consistent with Prince and Kraitit (2017), Jäger and Weber (2020), and Hartmann and Apaolaza-Ibáñez (2012); however, they are inconsistent with the results found by Kapuge (2016). It is noted that 92 percent of Bangladeshi customers rely on verbal recommendations, such as suggestions from family and friends. Furthermore, contact has been made faster and simpler by the advent of the internet, social and mobile media and television advertising (Sazzadul (2016). Organic fish marketers should therefore create a strong verbal campaign discussing how organic fish can protect humans from COVID-19 and generate a powerful message that reaches the hearts of consumers.

### **5.1. Implications for researchers**

Since this paper is the first to reveal the consumers' thoughts about purchasing organic or green food maintaining a safe social distance during the COVID-19 pandemic, and no similar study could be found in the existing literature, these findings are original.

The conceptual model of the study was developed from the knowledge gap identified in the literature review of the last three decades. In addition, this research has added a new dimension—i.e. social-distance purchasing—into the model, which is a unique contribution to the current literature on consumers' organic-food purchasing behaviour. Moreover, the model included two classical and well-established theories (cognitive dissonance and planned behaviour), which demonstrated that these theories are highly desirable, applicable and relevant in a modern context. The model can be tested by other scholars in any other part of the world who are working on similar topics to determine more about consumers' organic food-purchasing intentions. Furthermore, the model of the study will guide other academics in selecting significant variables when they conduct further research in other related areas.

The entire world is undergoing the COVID-19 pandemic and safe-food consumption is on the rise. Previous history indicates that the pandemic is not going to fade away from the world very soon and there should be more research in the current topic to help the researcher to come up with a solution to prevent it and come up with a guideline to combat the pandemic. Therefore, the present research on organic food topics is current and extremely important. In addition, this research enhances the external validity and generalizability of prior empirical studies conducted on organic food-purchasing behaviour.

### **5.2. Implications for practitioners**

Fish is one of the most popular food consumptions in the riverine country of Bangladesh. It is important for buyers and producers both to make sure the handling of fresh fish that are highly perishable products. Therefore, the study can guide and extends the research on organic-food marketers to determine what attributes and practices (such as applying appropriate social-

distance strategies, producing more organic fish and lowering their price) influence consumer consciousness in regard to their organic fish-purchasing intentions. It can also help governments, companies and decision makers to improve policies and programmes for the development of organic fish markets. In addition, the research will have a significant impact on the sample country's fiscal implications both in national as well as international context.

### 5.3. Limitations and future research

The present research focuses exclusively on the inhabitants of Dhaka, the capital city of Bangladesh. Therefore, it would not be correct to state that study findings are applicable in other parts of the country including rural parts of Bangladesh. Moreover, further empirical research should focus on other countries for the purpose of generalisation. Likewise, future research can be conducted focusing on other developing countries or different cultural contexts that address similar subjects.

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#### Author details

Sheikh Ashiqurrahman Prince<sup>1</sup>

E-mail: [sheikh\\_prince@yahoo.com](mailto:sheikh_prince@yahoo.com)

ORCID ID: <http://orcid.org/0000-0003-4103-1252>

Ishraat Saira Wahid<sup>2</sup>

E-mail: [ishraatw@yahoo.com](mailto:ishraatw@yahoo.com)

<sup>1</sup> Department of Management Studies, Bangabandhu Sheikh Mujibur Rahman Sheikh Mujibur Rahman Science and Technology University, Goplaganj 8100, Bangladesh.

<sup>2</sup> School of Business, University of Liberal Arts Bangladesh, House 56, Road 4/A, Dhanmondi, Dhaka 1209, Bangladesh.

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