



## Research article

Evaluating the impact of social media on online shopping behavior during COVID-19 pandemic: A Bangladeshi consumers' perspectives<sup>☆</sup>Md Rukon Miah<sup>a</sup>, Afzal Hossain<sup>b,\*</sup>, Rony Shikder<sup>a</sup>, Tama Saha<sup>a</sup>, Meher Neger<sup>a</sup><sup>a</sup> Department of Marketing, Comilla University, Cumilla, Bangladesh<sup>b</sup> Department of Business Administration, Trust University, Barishal, Bangladesh

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## ABSTRACT

**Background of the study:** Nowadays, the business pattern is changing globally. The business organization is influenced customers to purchase their necessary goods and services from online businesses. The online-based business takes promotional activities through social media platforms like Facebook, Twitter, Instagram, and Pinterest.

**Purpose:** The aim of the research was to investigate the impact of social media on online shopping behavior during the COVID-19 pandemic in the context of Bangladeshi consumers.

**Research methods:** Quantitative type research was applied and the study used descriptive research design. A standardized questionnaire was used to collect 350 data points from Bangladeshi consumers using an online purposive sampling method. A partial least square structural equation modeling (PLS-SEM) approach was used to evaluate the data and test the hypotheses.

**Results:** PLS-SEM analysis method demonstrated that celebrity endorsement, promotional tools, and online reviews had a positive significant impact on online shopping behavior during the COVID-19 pandemic in the perspective of Bangladesh.

**Conclusion:** The research paper provides practical guidelines for online-based business organizations on how to effectively use social media platforms for business target advertising and promotional activities. The customers are also motivated to purchase through social media because of positive online reviews and trustworthy celebrity endorsements.

## 1. Introduction

With the expansion and spread of the 2019 novel coronavirus (2019-nCoV), also known as the severe acute respiratory syndrome coronavirus 2, a new public health crisis is threatening the world (SARS-CoV-2). In December 2019, the virus was revealed in bats and conveyed to humans via anonymous intermediary species in Wuhan, Hubei Province, China. To date (05/03/2020), there have been roughly 96,000 recorded cases of coronavirus disease 2019 (COVID-2019) and 3300 recognized deaths. The disease is spread through inhalation or contact with polluted droplets, with a 2 to 14-day incubation period. Fever, cough, sore throat, dyspnea, weariness, and malaise are common symptoms. Most people have a minor case of the common symptoms. Most people have a minor case of the condition. However, certain people (typically the elderly and those with comorbidities) may develop complications (Singhal, 2020).

The global proliferation of coronavirus has had a number of negative effects on human health (Jajodia et al., 2020; Rajendran et al., 2020). Most enterprises have been adversely impacted by COVID-19, and as a consequence, they have been compelled to implement multiple measures to limit the proliferation of the coronavirus while also harming their organizational performance and effectiveness (Bartik et al., 2020; Donthu and Gustafsson, 2020; Sohrabi et al., 2020). To contain the spread, people should exercise social detachment, self-isolation, and reduce travel, which also led to a significant decrease in institutional and business output (Nicola et al., 2020). The global COVID-19 epidemic has severely affected societies and economies around the world and has hit various sectors of society in various ways. This unprecedented situation has far-reaching consequences for consumers' daily lives and has dramatically changed how businesses operate and how consumers behave (Donthu and Gustafsson, 2020; Yuen et al., 2020). The current

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situation, after the first wave and the beginning of the second wave of the COVID-19 epidemic in Europe, has forced many consumers to reconsider their established shopping and shopping habits or even learn new ones (Sheth, 2020). Nowadays, social media is playing a significant role in the online marketing environment for buying products from online stores rather than traditional themed stores with the help of an internet connection. In the current situation, social media is a relatively new trend. The most popular social networking sites like Facebook, Twitter, LinkedIn, Pinterest, and Google contribute to the majority of activities such as messaging, chatting, gambling, and blogging. Consumers typically participate actively on social media and spend long hours on Facebook and Twitter, creating content and sharing it. Companies that are aware of these issues are moving towards various activities to attract customers, increase their level of awareness and make the most of the opportunities offered through social media. Accordingly, firms conduct strategic campaigns that overlap with customer structures and brand values to increase the level of social brand recognition. Digital and social media marketing allows companies to accomplish their marketing aims at relatively low cost (Ajina, 2019; Yadav, 2016).

Individuals and families who buy a company's goods for personal consumption are denoted as consumers (Kotler, 2004). Consumer behavior refers to the actions that consumers participate in when buying, consuming, and disposing of products and services. Consumer behavior is the study of how people shop, what they shop for, when they shop, and why they shop. When a customer needs to make a purchase, they will go through the steps of acknowledgement, information search, evaluation, purchase, and feedback (Blackwell et al., 2006). Finally, the customer will select a product or brand to consume from a variety of options available in the market. These factors, on the other hand, have an impact on consumer purchasing behavior. When it comes to consumer buying choice behavior, it's critical to identify the many sorts of consumers who have different buying decision behaviors based on their level of involvement and capacity to discern significant differences between brands. The term "buying participation" is defined by Hawkins and Mothersbaugh (2010) as the level of interest a buyer has in purchasing a product or service. Retail managers and marketers must keep records of shifts in consumer buying behavior and attitudes in order to identify which strategies they should implement (Verma and Gustafsson, 2020). Pantano et al. (2020) argue that customers have re-examined their buying habits even while recognizing advantages from previously unknown services. On the one hand, social media is a rich source of information about a company's consumer views; on the other hand, it promotes social interaction among consumers, which results in increased trust and, thus, changes in customer preferences' purchasing behavior (Hajli, 2014).

Online shopping behavior involves the process of purchasing goods and services through the internet (Sun et al., 2019). After collecting product information, the consumer selects an item according to its requirements and transaction criteria for the selected product, evaluates the product along with other available options, and gains post-purchase experience (Kotler, 2000). Online shopping behavior is related to the psychological state of the customer buying online (Li and Zhang, 2002). Social networking sites have been widely used by people for their professional and personal use in the era of global communication. According to E-marketer (2013), companies for various marketing activities such as marketing research, branding, customer relationship management, sales promotion, and service and service delivery have gradually adopted various studies as well as social networking sites that ensure the positive effects of social development in marketing strategy media.

The World Wide Web has persuaded people around the world to make small changes in their behavior and attitudes. Because of these blessings, online shopping has emerged, which affects the lives of ordinary citizens. Online shopping has started in Bangladesh, but consumers are still not very accustomed to shopping online. Customers are becoming familiar with the internet and its benefits. Online shopping is becoming popular and a priority among a group of customers to get better quality offers

related to information, benefits, and cost choice. Like other young Asians, Bangladeshi youth are experimenting with new ways of shopping that have led to the rise and popularity of online shopping in Bangladesh.

Nowadays, customers' purchasing patterns are changing globally, and they are purchasing goods and services through online shopping. Customers were heavily influenced by social media to shop online. During COVID-19, customers didn't go to shopping malls frequently because of lockdown, isolation, and fear of being affected by the coronavirus (Eger et al., 2021). Business organizations can motivate customers to purchase through online shopping via social media platforms like Facebook, Twitter, Instagram, and Pinterest. Marketers have a great advantage on social media because they can influence or create awareness about goods and services and motivate them to purchase via online shopping. Business organizations can use social media platforms to influence their existing and potential customers to purchase their necessary goods and services through online shopping or online business platforms (Chaturvedi and Gupta, 2014). Customers have been influenced by organizations via live streaming, celebrity endorsements, online reviews of customers, and promotional tools like target advertising (Geng et al., 2020; Schouten et al., 2020). During the corona pandemic, the marketers took home delivery services to the customers (Wang et al., 2021). Good online reviews have influenced potential customers to purchase through online shopping (Mo et al., 2015). Online shopping behavior will benefit both customers and marketers (Berman, 2012). Nowadays, in our society, some customers are so busy that they don't have the available time to purchase their necessary products or services. That's why they are not able to go to the market practically within a short time. They prefer to order any kind of commodity or service via online shopping. At present, customers want a relaxed environment on social media for shopping. Marketers provide target advertising via social media like Facebook, Twitter, and so on (Luo et al., 2019). Thus, social media marketing tools are more useful than other marketing communication mixes. Word of mouth from celebrities and positive customer reviews encourages other customers to shop online.

This study was conducted on social media due to several factors that influence buying behavior. Purchasing online remittances has become an interesting and new topic for researchers around the world. People's buying patterns are changing. Online social media is a tool that has only recently developed and developed rapidly in the last few years, and it might have the problem of a lack of studies in all countries since it is at an early stage in the field of social commerce (Huang and Benyoucef, 2015; Hossain et al., 2019). There are a lot of social media users in Bangladesh and they prefer to shop online, but there is still a lack of research on the trend of social media impact when buying a product online. Thus, by doing this research, marketers can focus on the areas that have the most impact on their online buying behavior. The purpose of the study is to understand the buying behavior of online shoppers.

After reviewing most of the related literature on social media that influences online shopping, it is clear that most researchers tried to assess the influence of social media (live streaming, celebrity endorsements, promotional tools, and online reviews) on buying behavior, purchase intention, purchase decision, customer satisfaction, and online shopping behavior from the perspectives of customers all over the world, but this research has been tried to focus on investigating the influence of social media on online shopping behavior during the COVID-19 pandemic from the perspectives of Bangladesh, which remained an unexplored field. This research provides an insight on the influence of live streaming, celebrity endorsements, promotional tools, and online reviews on online shopping behavior during the COVID-19 pandemic of citizenship customers' level in eminent Bangladeshi purchasers' and sellers' experiences, which will help policy makers and stakeholders formulate better digital marketing strategies in Bangladesh, as well as the research field in the perspectives of the COVID-19 pandemic.

The broad objective of the research was to investigate the influence of social media on online shopping behavior during the COVID-19 pandemic in the context of Bangladeshi consumers. Specific objectives

are: to assess the behavior pattern of consumers towards online platforms; to explore the impacts of the COVID-19 pandemic on buying behavior; and to study the effect of live streaming, celebrity endorsements, promotional tools, and online reviews on the online shopping behavior of consumers during the coronavirus pandemic in the context of Bangladesh.

The theory behind the study and the terminology and propositions that will be used to achieve the research objective will be explained. Furthermore, the interrelated association of dependent and independent variables will also be deliberated upon following past studies. The key research questions of the study are stated as follows: Is there any significant relationship between live streaming and online shopping behavior?; How is celebrity endorsement relevant to online shopping behavior?; How are promotional tools relevant to online shopping behavior?; and what are the relationships between online reviews and online shopping behavior?

The research paper is allocated into several sections. Initially, the literature review is provided based on a past study. Secondly, the conceptual model and hypotheses developed have been demonstrated. Thirdly, research methodologies that are applied to the current research are described. Fourthly, the paper is presented with the results and interpretations. Fifthly, the discussions, conclusion, and implications sections incorporate the consequences of the present research and its linkups with the previous studies. At the end of the segment, the shortcomings and potential directions of the research are stated.

## 2. Literature review

### 2.1. Theoretical background

#### 2.1.1. Social influential theory

According to [Kelman \(1958\)](#), SIT (Social Influential Theory) is defined as individuals' beliefs, attitudes, and consequent activities or manners that are impacted on other people over three procedures: compliance, identification, and internalization. Persuasion is expected to happen when people receive influence and accept the persuaded conduct to increase rewards and evade punishments. Hence, satisfaction resulting from compliance is because of the social effect of acquiescent influence. Identification might be said to occur when individuals embrace persuasion with the purpose of making or sustaining a preferred and useful connection to other people or a group. Internalization is expected to happen when individuals receive influence and later observe that the gratified of the persuaded performance is pleasing in which the content designates the attitudes as well as actions of others. Influencers perform their functions as a third party who can meaningfully form the company's purchasers' opinions, choices, and actions. Any person can be an influencer by influencing customers to purchase goods and services within a community ([Gillin, 2007](#)). Information transferred from one person to another person influences customers through word of mouth. Celebrity people's behavior influences customers through talking about the company ([Sernovitz et al., 2012](#)).

#### 2.1.2. Information processing theory

How people collect, illustrate, and use information to make decisions is the main concept of Human Information Processing Theory ([Newell and Simon, 1958](#); [Norman, 1968](#); [Reitman, 1965](#)). Information process theory conceptualizes how individuals take care of ecological occasions, encode data to be learned, relate it to what they know, store new information in their memory, and retrieve it depending on the situation ([Shuell, 1986](#)), cited in [Schunk \(2012\)](#). Researchers have shown that buyers' decisions are formed by the manner in which humans' process information ([Huber and Seiser, 2001](#)). In this study, online shopping behavior also depends on the buyer's decision. Information is one of the most important things that influences the consumer's purchasing pattern. When consumers gather or collect information from online reviews and

celebrity endorsements, they will be motivated to purchase the products or services.

#### 2.1.3. Social exchange theory

SET was developed initially to investigate human behavior ([Homans, 1958](#)) and was later applied to comprehend hierarchical behavior ([Blau, 1964](#); [Emerson, 1962](#)). The Social Exchange Theory states that individuals and organizations are assisted to maximize their rewards and limit their expenses ([Salam et al., 1998](#)). Individuals regularly anticipate proportional advantages, like individual warmth, trust, appreciation, and monetary return, at the point when they act as indicated by social norms. Accordingly, relational cooperation from a money-saving perspective is an exchange where actors obtain benefits. From a cost-benefit perspective, they communicate individually, which aids in exchange where the actor gains an opportunity ([Blau, 1964](#)). In the present day, SET has been adopted in social networking research. So, this theory is suitable for this study because it depends on online shopping behavior. Based on psychology, SET accepts the fundamental ideas of modern economics as a foundation for analyzing human behavior and connections in order to determine the complexity of social structures. At the time of promoting, companies require a cost to get a customer's attractions in order to retain the customer. Hence, if the research is used promotional tools more, such as advertising, personal selling, and sales promotion, as a result, it's possible to get customer attention whenever they are motivated or influenced, at which time they will purchase goods and services online. Promotional tools and live streaming are both related to human behavior and easily affect online shopping behavior.

### 2.2. Live streaming

The coronavirus pandemic calamity knocked out the world and affected all sides of our lives, including customers' preferences, habits, and shopping behaviors. During the corona pandemic times, e-shops were stimulated on social media ([Ali et al., 2021](#)). Day by day, live streaming has been popular. Numerous merchants on social commerce display places have embraced it because of its ability to increase their company's sales performance. Live streaming shopping is a new form of social commerce that has already been developed and implemented by social commerce merchants ([Adoeng et al., 2019](#); [Taobangdan and Taobao, 2019](#)). The live presentation helps a businessman influence the online customer to purchase products. Live streaming has transformed the out-of-date social business model in different ways. In outdated online shopping, customers can only know about goods and services via text and pictures. Otherwise, live streaming allows online sellers to show real-time videos of the products and also let customers know about the product's overall features and quality ([Wongkitrungrueng and Assarut, 2018](#)). In traditional social commerce, shoppers could only ask about product-related topics, but in modern times, consumers can ask the question via screen and streamers can give the answer in real-time ([Wongkitrungrueng and Assarut, 2018](#)). Live streaming shopping creates a real-time stream between sellers and buyers. Online shoppers can watch the live presentations of products that influence customers to purchase that product. Customers' any confusion about products can be reduced through visual presentations of products ([Chen et al., 2017](#); [Kim and Park, 2013](#); [Zhou et al., 2018](#)). The increasing popularity of visual presentations highly influences customers to buy the products ([Yu et al., 2018](#)). While customers' engagement with live presentations of products is positively impacted on customer minds about products, it is also a stimulus to shop for those products ([Wongkitrungrueng and Assarut, 2018](#)). Despite the fact that buyer commitment has been identified as a significant antecedent persuading purchaser buying in online spending ([Prentice et al., 2019](#)), only a few studies have measured the previous circumstances and outcomes of purchaser assignment according to live streaming shop. Live streaming broadcasting makes use of one or more pieces of equipment that can instantly show images and sounds to other

locations, allowing users to observe their existence (Chen and Lin, 2018). Live streaming shopping is a new social media form with a high HCI that raises customer awareness of products. Preceding live-streaming lessons have chiefly concentrated on video games and e-sports (Cheung and Huang, 2011; Sjoblom and Hamari, 2017). Many customers increase their capacity to buy through live streaming shopping by gaining new perspectives and asking pertinent questions (Lu et al., 2018). Live streaming can show images as well as sounds from one place to a different place instantly (Chen and Lin, 2018). Live streaming purchasing is an extremely noticeable form of merchandise demonstration through online videos. When customers make purchase decisions, they need clear information about products and also want to see the products visibly through the live presentation. It gives the clients an intellect of engagement. Besides, the richness of live streaming spending makes it stress-free to fascinate buyers. Consequently, consumers observe immersion (Yim et al., 2017). Besides, live presentations can communicate complete videos to consumers, as well as the sellers can show how to use the merchandise through live streaming, which permits the product to be visualized (Li, 2019; Javadi et al., 2012). In live presentations, sellers and customers interact with each other through live streaming, and customers watch the seller's voice, movement, and product features. So, customers know that the sellers are real people because of the live presentation via social media. Live streaming allows companies to broadcast their products' different items via live presentations. Furthermore, live presentations can prompt captivation, which can lead to a logic of immersion (Shin, 2017). Online shopping and e-commerce have developed an innovative and lucrative business model. Here, buyers and sellers are both connected with live presentations, with buyers asking product-related questions to sellers and also watching the product and product features (Attfield et al., 2011). Visual presentation shopping is being subjected to extraordinary growth. On the other hand, interest in the live-stream market is in its embryonic stage. Different celebrities talk about products and motivate them through live presentations (Ma, 2021). Day by day, with the increase of online shopping, many companies provide live help or visual presentations through test chatting, instant messaging, and live product presentations. Businesses and customers can conduct real-time human-to-human communications for e-commerce Web sites (Qiu and Benbasat, 2005). E-retailers are taking on innovative arithmetic advertising tactics to deliver more accurate information to their consumers. In real-time business, live video streaming allows sellers and consumers to interact (Zhang et al., 2019). Nowadays, consumers have become familiar with visual presentations and product features online and have finally purchased those products that they like. Consumers are motivated to purchase products through live presentations (Yin, 2020).

### 2.3. Celebrity endorsement

There are many social media platforms, for instance, Facebook, Twitter, Snapchat, and Instagram. Day by day, social media continues to rise speedily in popularity. Celebrity people are using different social media platforms and distributing different information about products to customers. The celebrity of Instagram is influencing consumers' online purchasing behaviors (Gupta et al., 2020). Through social media, online information sharing in the communal sphere has not only promoted the customers' buying choices. Celebrity people provide information about goods and services to actual and potential customers (Lee et al., 2008; Ashfaq and Ali, 2017). Along with the diverse investigators, the practice of celebrity endorsements supports in structure the products' identification as well as generates optimistic insolence (Petty et al., 1983), improves the prospect of buying (Friedman and Friedman, 1979), nurtures trademark trustworthiness, and completely influences positive word of mouth (Bush et al., 2004). Celebrity endorsements have a significant impact on consumers' purchase decisions (Ohanian, 1990). In the same way, Instagram celebrity has a momentous impact on consumers' online shopping behaviors (Kutthakaphan and Chokesamritpol, 2013). Most

celebrities have a more positive impact on consumers' minds about the products than less credible celebrities. Credible celebrity people influence consumers' online shopping behavior (Aziz et al., 2013). Celebrity people created a brand different from another one because consumers can easily select their preferred products. Through social media advertisements (Meng et al., 2020), celebrity endorsements have an effect on customers' buying behavior. Celebrity images might have an effect on positive and negative consumer attitudes. A celebrity's usefulness depends on their trustworthiness and credibility in an online advertisement. A celebrity's good image can have a positive effect on product acceptance (Ibok, 2013). A celebrity can easily motivate consumers towards purchasing products because people believe infamous people. Through social media, a famous personality created awareness about products with customers. They can positively influence customers' opinions of the brand (Rai and Sharma, 2013). Celebrity endorsement is one kind of promotional activity that attracts customers to specific products. Different companies use different celebrities to promote the awareness of their products to customers, and customers might be motivated to purchase those products. Customers purchased products based on the credibility of celebrities (Khatri, 2006). The influence of superstars' post-legitimacy, observational learning, sentimentality polarization, and impulse purchasing propensity reins in the dormant state-trait theory. Security is influencing consumers' online shopping behavior through social media (Zafar et al., 2021a). Normally, followers consider that celebrity posts are authentic; that's why they easily influence consumers to make online purchases (Wilcox and Stephen, 2013). On social media, celebrities share their opinions and advertisements that highly stimulate potential buyers to purchase products (Chung and Cho, 2017; Xiang et al., 2016). Celebrity advertisements have so many advantages and disadvantages. Celebrity advertisements can be used to achieve a company's competitive advantage (Han and Yazdanifard, 2015). With regard to a celebrity's values, occupation, ethnicity, and other characteristics, the customer ought to never be curious about why this star is certifying the merchandise (Meng et al., 2021; Gan and Wang, 2015). Generally, the research should be focused on celebrities' groups or pages where customers are replaying or commenting on celebrities' posts as well as their peers' social communication. Some celebrities have a large number of followers; they maintain an online community. Business organizations give priority to social media celebrities in their marketing strategy to motivate online shopping behavior (Pemberton, 2017). Consumers follow the celebrity's posts and pursue their lifestyle, with clothing, makeup, fashion, the destination of holidays, even restaurant choice. Organizations try to use such celebrities for effective social media marketing promotions (Hennig-Thurau et al., 2013; Kumar and Mirchandani, 2013). Celebrity followers always enquire for recommendations from business organizations. Celebrities' any business-related posts that stimulate consumers' online purchasing behavior (Wilcox and Stephen, 2013).

### 2.4. Promotional tools

Technological changes are occurring in eye flashes and values are changing over time. Customers' buying habits change rapidly, and the fortunes of different companies vary. Online marketing has been seen as a new form of marketing and has given companies new opportunities to do business. According to Dehkordi et al. (2012), e-commerce and e-marketing show that internet marketing is easier than conventional marketing (Dehkordi et al., 2012). Leena Jeenefa noted that there are several notable relationships between purchasing behavior and the effects of media advertising (Jenefa, 2017). Reza Jalilvand and Samiei (2012) evaluates how advertisers use social media to make their products popular. The reason for the promotional price promotion is that the consumer does not have the rational mindset to think about whether it is worth buying more at that moment, and this also increases online purchasing behavior (Agyeman-Darbu, 2017). Some social media stated that if consumers buy two, they will get one free, and this also leads to the



consumer having a strong positive feeling. [Ibok \(2013\)](#) found that young people feel more comfortable when choosing and buying products online than in physical shopping options. Social media helps them save time and effort examining product information. Privacy, trust, and protection play an important role in social media networking sites. Online advertising businesses use electronic marketing tools to create marketing strategies, advertising theories, and customer buying behavior due to potential market segmentation. According to [Eyre et al. \(2020\)](#), online advertising includes contextual ads on examining banner ads, rich media ads, social network advertising, online classified advertising, and marketing email like spam. Advertising is defined as the definition of any personal meaning related to product ideas and information in the media to create a brand image ([Kotler and Armstrong, 2010](#)). For many years, television, radio, newspapers, and magazines were the only means and channels of advertising, but nowadays, online advertising is becoming the main driving force in many advertising initiatives and efforts ([Kotler and Armstrong, 2010](#)). Content is one of the most important features of e-advertisement. It delivers written information regarding particular products or services to online users. Customers are rapidly adopting online shopping day by day due to a busy lifestyle. Undoubtedly, as a developing country, Bangladesh has a lot of potential customers for online businesses. Bangladesh is one of the countries that uses social media the most. It is important to know what causes online buying behavior on social media.

### 2.5. Online reviews

Purchase intention can be used to measure the possibility of a consumer buying a certain product. When deciding to buy a product, most customers are influenced by comments and ratings from online reviews, and they take a positive or negative view of the product. Social media enabled through mobile devices can be accessed everywhere, instead of not only increasing access to information but also allowing people to create content and strengthen their voices around the world ([Labrecque et al., 2013](#)). Social media is playing a crucial role in sharing opinions and product knowledge with consumers and, as a result, having an impact on other consumers ([Lim et al., 2016](#)). According to [Zhang et al. \(2019\)](#), the availability of online reviews plays an important role in online shopping behavior compared to other things. The availability of online reviews refers to the large number of online reviews that are sufficiently available online for the consumer's decision-making process ([Zhang and Zhu, 2010](#)). Social media users have realized that a good number of online reviews point to online shopping behavior among customers. Good online shops create an opportunity to search for any product ([Zhang and Zhu, 2010](#)). Furthermore, the availability of online reviews makes online shopping appreciate the quality and motivates the customer to try it for the first time ([Cui et al., 2010](#)). A good number of customer reviews will have a positive impact on other users on social media, and it can be effective for the online shopping industry to increase sales volume through social media reviews ([Geetha et al., 2018](#)). In addition, many researchers have found that a large number of online reviews can influence a potential customer when they choose a product through social media. Significantly, if consumers respond positively to a good number on social media sites, they are more likely to choose their favorite product than cheap ones ([Geng et al., 2020](#)). For example, the availability of online reviews on social media should create an opportunity to try a new product, and potential customers may be the priority in their selection criteria ([Geetha et al., 2018](#)). Numerous empirical studies across different industries have already investigated the influence of the number of review attributes from a variety of perspectives. For example, the number of reviews ([Dellarocas et al., 2007](#); [Ghose and Ipeiritos, 2010](#)), the response to negative reviews for online product management ([Kim et al., 2015](#)), the positive online product reviews ([Ye et al., 2009](#)), and the overall valence of a set of reviews of a product ([Spark & Browning, 2011](#)). Consumers consider the internet as a tool to obtain information as a part of the decision-making process before purchasing products. The number

of online reviews needs to have a positive impact on potential customers of unfamiliar products ([Zhang and Zhu, 2010](#)). As a result, the brand availability of online-spread products increases because customers share their experiences on social media pages. A product review site assesses consumers on their own and how they feel about product quality, service systems, and their overall environment. For this reason, the behavioral motive of the customer should change when they decide to choose a product from the review site ([Gan and Wang, 2015](#)). An online review is similar to a traditional face-to-face communication messenger. It is considered a new form of recommendation ([Helm et al., 2010](#)). [Zhang and Zhu \(2010\)](#) indicate that the reviews' perceptual information and reasoning power are an important determinant of customer behavioral will, although the source is not credible. So online review materials still play an important role in consumer decision-making because good reviews from one customer can lead to another customer purchasing the product. Additionally, many prior studies have examined whether the availability of online reviews has a significant influence on consumers' product selection when they search for other reviews on social media ([Zhang et al., 2019](#); [Cui et al., 2010](#)). It has also been noted that the availability of online reviews has been verified as an effective tool for conducting research questions on consumer product selection ([Zhang et al., 2019](#)).

### 2.6. Online shopping behavior

Businesses turned to alternatives and took up online marketing because of COVID-19 pandemic. Online marketing is a significant method for streamlining business processes, reducing managerial costs and turnaround time, maintaining social distance, staying at home, protecting against viruses, and illuminating associations with customers and business partners ([Hossain et al., 2022](#); [Hossain and Khan, 2018](#)). At present, online shopping is becoming more popular all over the world, especially for retailers and customers. Online shopping creates opportunities for both online retailers and customers ([Kuester and Sabine, 2012](#); [Hossain et al., 2018b](#)). Customer research has shown that customer assessments dispatched online and the allotment of information or particular views have become enormously influential means of communication. Online reviews have taken over business organizations through social media (Facebook, Snapchat, Twitter, and Instagram) ([Doh and Hwang, 2009](#); [Lee et al., 2011a](#); [Jalilvand and Samiei, 2012](#); [Huet-Alcocer, 2017](#)). Different types of online reviews have improved the customers' internet shopping performance. Satisfied customers are giving online reviews through social media that influence other consumers' online shopping ([Fu et al., 2020](#)). Nowadays, several customers are purchasing social media. Many business organizations have opted to take advantage of opportunities obtainable through social media networks to gain more consumers ([Kaplan and Haenlein, 2014](#)). Live streaming stimuli motivate consumer cognitive states that influence consumer online shopping behavior ([Xu et al., 2020](#)). The business organization has promoted social media advertising to attract online shoppers to purchase products online ([Mumtaz et al., 2011](#)). Targeted advertising by businesses on social media (Facebook, Instagram, and so on). Business organizations know about customers' choices, preferences, and information through social media. They are doing e-advertising based on customers' preferable products and are influencing customers to purchase those products. An organization is able to run different advertising for different categories of customers, and an organization can set their target price ([Iyer et al., 2005](#)). Companies can transfer information about products through online advertising. Consumers can visually watch their preferred products via advertising. Entrepreneurs use celebrity endorsements to promote their company's products, and it is increasing consumer purchase intentions. Consumers purchase products online and the created appeal of a statement by a celebrity might influence a customer's product image ([Wang et al., 2013](#)).

This research has been prepared during COVID-19. In the research has applied three types of theories, such as social influence theory,

information processing theory, and social exchange theory. In previous research, researchers have used online reviews as well as celebrity endorsements as factors under both social influence theory and information processing theory. For the first time at COVID-19, the research has applied these factors under the social influence theory and information processing theory, which have never been used before. The research paper has used social exchange theory. This theory identifies that promotional tools influence customers to buy their necessary goods and services through online shopping. The previous researchers didn't show social media impacts on online shopping behavior during COVID-19. The research has applied those factors during the COVID-19 time period, which made research paper unique from previous research. During COVID-19, The research was used technical tools that had never been applied to that type of theory before. The research paper has analyzed by SmartPLS version 3.0 and used a structural equation model.

### 3. Conceptual model and hypotheses development

According to Zhang et al. (2019), by reducing psychological distance and perceived uncertainty, a live streaming strategy can improve a customer's online purchase intention. Chandruangphen et al. (2022) find out vendors to concentrate on significant live streaming attributes to develop trust with their clients and increase their customers' intentions to watch and buy. The literature and researcher findings suggest that offering live presentations enables sellers to introduce items in a novel way, which might improve customers' moods and sentiments towards the product. So, customers should feel more confidence in the seller and his/her items because of live streaming. Thus, it is expected that:

**Hypothesis 1 (H1):** *Live streaming has a significant impact on online shopping behavior.*

Park and Lin (2020) develop and test an integrative model of online celebrity endorsement by exploring compatibility impacts on customers. Meng et al. (2021) find that the feelings of audiences towards online celebrities can influence a buyer's willingness to buy products suggested by the online superstar. The literature and researcher findings suggest that celebrity endorsements represent attractiveness, believability, and celebrity-product compatibility, which have positive effects on a buyer's attitude towards products and brands as well as purchase intention. As a result, celebrity endorsement may increase users' desire to purchase any product. Therefore, it is expected that:

**Hypothesis 2 (H2):** *Celebrity endorsement has a positive influence on online shopping behavior.*

Ashraf et al. (2014) found that sales promotion played a more significant role in the development of consumer buying behavior. Yahya et al. (2019) and Shamout (2016) revealed in their study that coupons, discounts, free delivery, and other promotional tools have a positive impact on consumer buying decisions. The literature and researcher findings suggest that sales promotion has a huge impact on consumer buying behavior, such as purchase time, product brand, product quantity, brand switching, and so on. Again, sales promotion can be used by marketers to create a long-term customer relationship, which can help them increase their sales. Based on the previous discussion, it is expected that promotional tools will have a positive relationship with purchase intention (Siddique and Hossain, 2018). Thus, it is expected that:

**Hypothesis 3 (H3):** *Promotional tools have a positive influence on online shopping behavior.*

According to Nuseir (2019) and Ventre and Kolbe (2020), organizations should seek to increase customers' sharing of their positive online opinions in order to improve attachment and encourage online shopping. When the reviews contain detailed information about the product, consumers deem online reviews to be more credible (Jimenez and Mendoza, 2013). The literature and researcher findings suggest that consumer opinion and peer reviews are among the top factors to consider for online shopping behavior. Thus, online sentimental reviews grab more attention from consumers and affect them positively when purchasing products. Therefore, it is expected that:

**Hypothesis 4 (H4):** *Online reviews have a significant impact on online shopping behavior.*

In this study, four independent variables (live streaming celebrity endorsements, promotional tools, and online reviews) and one dependent variable (online shopping behavior) have been recognized. Based on the previous literature and discussions, the conceptual framework (Figure 1).

## 4. Research methods

### 4.1. Research design

The research design was applied when the collection of data and analysis of data processed by combining them were used in the research (Jahoda et al., 1951). This study is based on the quantitative survey method, with data collected using a structural questionnaire. To test the hypothesis, the study was conducted based on an online convenience and judgmental sampling survey. This study applied a descriptive study and collected respondents' attitudes and behaviors about social media's impact on online shopping behavior.

### 4.2. Methods of research data collection

The study collected data from respondents in written form. The study confirmed that informed consent was obtained from all participants for our research paper. The research paper applied primary and secondary data to prepare the study and make it more presentable. Primary data was collected via a survey and developed questionnaire. Business market research might use a questionnaire technique to collect consumer and customer opinions (Wang and Feng, 2012). Online surveys are used to learn about the impact of social media on internet shopping behavior. Primary data was collected from respondents by developing a Google form and sharing that form with other respondents via Facebook, WhatsApp, e-mail, and so on. In particular, the questionnaire was developed for those people who connected with social media like Facebook, Twitter, Pinterest, YouTube, WhatsApp, and so on.

This research paper also used secondary data that was collected from different articles, books, and newspapers. The research was collected secondary data by penetrating electronic databases, including Research Gate, Google Scholars, and Emerald Insight. The research was collected secondary data by searching top journals like the Journal of Marketing Analytics, the Journal of Business Research, the Journal of Consumer Research, and so on.

### 4.3. Method of sampling

#### 4.3.1. Sampling unit

People who have the equivalent attitudes and behavior in the direction of an entire group of people (Sekaran and Bougie, 2016). These people use social media and their age is above 15 years old. They are considered the population of this study. So, the population is unfamiliar with this research paper. For this research paper, there is no earmarked sampling unit among the total population. In this study, the population is considered students, managerial-level people, businessmen, and teachers.

#### 4.3.2. Sampling technique

Respondents for this study were chosen using an online purposive sampling technique and non-probability sampling methods. This research data was collected during the corona pandemic. The researcher collected data by distributing the questionnaire through Google Form Link and sharing this link with different convenient people. Non-probability sampling has been used because it is less time-consuming and less costly to prepare a sampling frame. Among the numerous ways of non-probability sampling, purposive sampling technique has

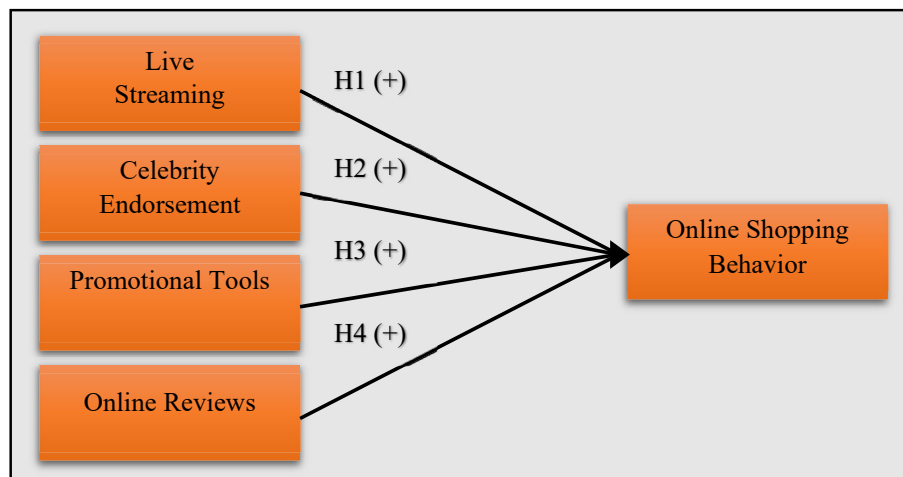


Figure 1. Research model.

been used because they are cheerfully available, generate a relatively low cost, and are convenient.

#### 4.3.3. Sample size

The purposive sampling method is applied to collect (N = 350) respondents' opinions through a developed questionnaire. The sample (N = 350) was collected from the Dhaka, Sylhet, Khulna, and Chattogram divisions among eight divisions of Bangladesh.

#### 4.4. Measurement scale of dependent and independent variable

The study used the Likert Scale (5 ratings). The Likert Scale is used for individual responses and measures the dependent variable and independent variable about the impact of social media on online shopping behavior during the coronavirus pandemic. The Likert Scale has five stages, and each statement in the form was measured by 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

#### 4.4.1. Measurement instruments

As illustrated in Table 1, the study used four constructs of social media to examine online shopping behavior during the COVID-19 pandemic. Live streaming factors include social sharing, hedonic consumption, cognitive assimilation, and impulsive consumption. The celebrity endorsement factor includes the number of shares, authenticity, positive sentiments, and recognizable celebrity. Promotional tools factor includes price discount, sales promotion, buy one get one, surroundings influence. Online review factors include the reviewer's reputation, the review's reliability, good customer rating, and argument quality.

#### 4.5. Data analysis

The smartPLS software version 3.0 was applied to examine the data collected via questionnaire. The conceptual model of the study was verified using structural equation modeling (SEM). For sample distribution, percentile measures and frequency distribution were primarily used in this study. The study's descriptive statistics were tested using mean as well as standard deviation measures. Collinearity statistics were used to test for multicollinearity among the independent variables. Besides, the reliability of the data or scale items was ascertained using Cronbach's alpha coefficients and composite reliability (CR). Discriminant validity was also used to test the Fornell-Larcker Criterion and the Heterotrait-

Monotrait ratio (HTMT) among the independent and dependent variables.

#### 4.6. Quality of data assurance

Enumerators and overseers were knowledgeable about this research objective, scale, data collection technique, and questionnaire. On a daily basis, the data collected is appropriately administered by superintendents and the data comprehensiveness and reliability are tested before the data is input to SmartPLS version 3.0 for more treatment as well as analysis.

## 5. Results and interpretations

### 5.1. Descriptive analysis

The study used mean and standard deviation scores to explore all of the aspects. The constructs were ranked in accordance with their enumerated mean standards. As shown in Table 2, online reviews had the highest mean score (M = 4.1164), while celebrity endorsements had the lowest mean score (M = 3.4829). Most of the factors produced medium mean scores. Therefore, the factor mean scores recommend that among all perspectives, there be no higher variation.

### 5.2. Multicollinearity test

The study used a multicollinearity test to measure the independent variables that were highly correlated among themselves. The estimated path coefficients were affected by the predictor constructs of collinearity. Tolerance values below 0.10 and variance inflation facet values above 5 specify the existence of inter predictor constructs' collinearity (Hair et al., 2019). As illustrated in Table 3, all tolerance and VIF values have an acceptable range in collinearity statistics. So, it was recommended that multicollinearity wouldn't affect the independent variable's capability to take to mean the outcome variable.

### 5.3. Measurement model analysis (outer model)

Hair et al. (2019) define "the measurement model as a constituent of a theoretical path model that holds the pointers and their associations with the factors; also called the outer model in PLS-SEM." In this study, confirmatory factor analysis (CFA) is applied to square in the event the

**Table 1.** Origin of constructs and measured variables.

Constructs	Items	Measured variables	Adapted Form
Live Streaming	LS1	Social networking sites are motivated to buy through online	Xu et al. (2020);
	LS2	Hedonic consumption has encouraged shopping	
	LS3	Online shopping is impacted by cognitive assimilation.	
	LS4	Online shopping has evolved from impulsive consumption.	
Celebrity Endorsements	CE1	Number of celebrity posts shared that have a positive impact on online shopping	Zafar et al. (2021);
	CE2	The authenticity of celebrity posts boosts online sales.	
	CE3	Celebrity endorsement fosters positive feelings toward online shopping.	
	CE4	Recognizable of celebrity endorsers motivates me to purchase a product.	
Promotional Tools	PT1	Price discount helps to increase online selling.	Bakewell and Mitchell (2003);
	PT2	Sales promotion creates purchase intention online.	
	PT3	By using the buy one get one technique the customer can easily attract to buy the product.	
	PT4	I feel like buying a product when my social surroundings influence me to buy products online	
Online Reviews	OR1	Reviewers' reputations has a positive influence on online shopping	Park & Nicolau, J. L. (2015); Cheng, Y. H., & Ho, H. Y. (2015)
	OR2	Online reviews are reliable and increase sales through the internet	
	OR3	Good customer ratings influence online shopping.	
	OR4	Argument quality helps to convince the customer to buy the product online.	
Online Shopping Behavior	OSB1	Consumers are highly aware about online shopping	Hossain et al. (2018a); Neger & Uddin, (2020).
	OSB2	Consumers have positive perception towards online shopping	
	OSB3	Consumers intent to purchase through online	
	OSB4	Consumers have decided to purchase	
	OSB5	Consumers are satisfied to buy with online	
	OSB6	Consumers will recommend to others to purchase	

**Table 2.** Descriptive statistics analysis.

Constructs	N	Mean	Std. Deviation	Rank
Live Streaming	350	3.9064	.65559	3
Celebrity Endorsement	350	3.4829	.94743	4
Promotional Tools	350	3.9943	.61147	2
Online Reviews	350	4.1164	.53580	1

**Table 3.** Multicollinearity test.

Constructs	Collinearity Statistics	
	Tolerance	VIF
Live Streaming	.617	1.621
Celebrity Endorsement	.612	1.633
Promotional Tools	.638	1.568
Online Reviews	.596	1.677

variables are loaded on their relevant constructs (Hair et al., 2019). In this study, SmartPLS software version 3.0 was applied to conduct structural equation modelling (Ringle et al., 2015).

**5.3.1. Unidimensionality**

In the present constructs, the unidimensionality component designates that every measurement item has a satisfactory equal factor loading according to the corresponding latent construct. Hair et al. (2019) claim that each factor has a measurement variable with a least factor loading of 0.70. According to Table 4, online reviews (OR1) and online shopping behavior (OSB6) have factor loadings of 0.674 and 0.663, respectively. However, OR1 and OSB6 factor loading values are close to 0.70. So, the research can be recommended that the unidimensionality measurement model has been recognized.

**5.3.2. Construct reliability tests**

The researcher used Cronbach's alpha and composite reliability (CR) to test the internal consistency. The recommended values of composite reliability (CR) and Cronbach's alpha are equal to or greater than 0.70, which is considered satisfactory to good for research (Hair et al., 2019). As illustrated in Table 4, all of the CR and Cronbach's alpha values have a satisfactory level. So, the researcher recommended that the constructs be reliable for further research.

**5.3.3. Convergent validity tests**

The average variance extracted (AVE) is 0.50 or greater than 0.50, assuring the convergent validity of the latent constructs (Hair et al., 2019). As illustrated in Table 4, all the average variance extracted (AVE) values are greater than 0.50 in this study because of the appropriateness of the constructs for further research.

**5.3.4. Discriminant validity tests**

Discriminant validity implies that each construct is empirically distinct from the other cross-loading that exists among the latent constructs. The correlation coefficients and square root of average variance extracted (AVE) among the constructs are associated to create discriminant validity (Hair et al., 2019). According to Table 5, the diagonal numbers are higher than the inter-construct resemblances presented off-diagonally. However, the discriminant's legitimacy is gained for the research constructs.

**5.4. Measurement model analysis (Inner model)**

The study measurement model recommended that all the measurement models be valid, then analyze the structural model relationship (Hair et al., 2019). The researcher makes an assessment which one accepts and rejects via significant and insignificant relationships that can be identified by structural model analysis. Besides, the researchers used a bootstrapping procedure with a subsample of 500 to assess the size of the path coefficients (Ringle et al., 2015).



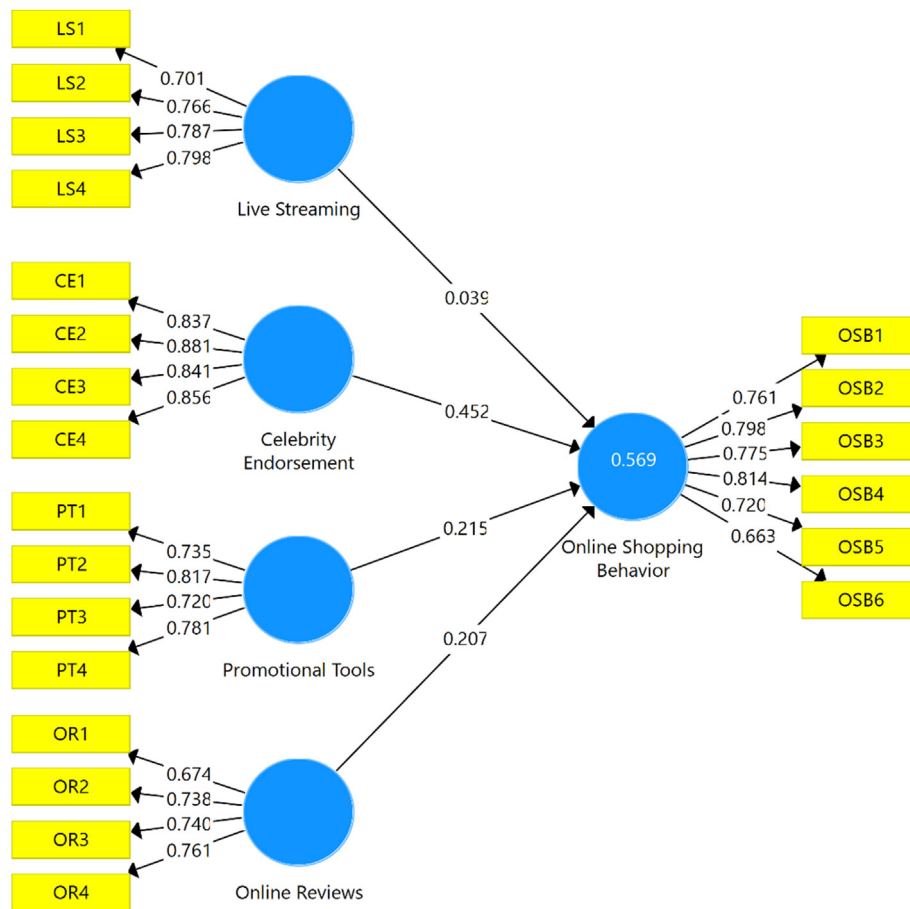


Figure 2. Structural model.

Table 4. Measurement model summary.

Construct	Items	Factor Loading	AVE	CR	Cronbach's $\alpha$
Live Streaming	LS1	0.701	0.584	0.848	0.767
	LS2	0.766			
	LS3	0.787			
	LS4	0.798			
Celebrity Endorsement	CE1	0.837	0.729	0.915	0.876
	CE2	0.881			
	CE3	0.841			
	CE4	0.856			
Promotional Tools	PT1	0.735	0.584	0.849	0.762
	PT2	0.817			
	PT3	0.720			
	PT4	0.781			
Online Reviews	OR1	0.674	0.531	0.819	0.720
	OR2	0.738			
	OR3	0.740			
	OR4	0.761			
Online Shopping Behavior	OSB1	0.761	0.573	0.889	0.850
	OSB2	0.798			
	OSB3	0.775			
	OSB4	0.814			
	OSB5	0.720			
	OSB6	0.663			

The structural model analysis includes the paths, path coefficients, t values, p values, and path coefficient results. A two-tailed t-test with a level of significance of 5% was used to test the hypotheses that had been developed. The coefficients are statistically significant if the measured t-value is greater than the critical value of 1.96. According to Table 6 and Figure 2, the path coefficients of three latent constructs, including celebrity endorsement, promotional tools, and online reviews, had a positive and significant association with online shopping behavior at  $p < 0.05$ . Here, the researchers mention that hypotheses H2, H3, and H4 are accepted. However, hypothesis H1 has no significant and positive relationship with online shopping behavior. Accordingly, H1 live streaming was rejected. According to Table 6 and Figure 2, the celebrity endorsement perspective's highest path coefficient ( $\beta_2 = 0.452$ ) specifies that if celebrity endorsement were to grow by one standard deviation unit, online shopping behavior could increase by 0.452 standard deviation units if all other independent perspectives continued constant.

## 6. Discussions

In the Bangladeshi setting, the research aimed at understanding the impact of social media on online shopping behavior during the COVID-19 pandemic. It has been found that most researchers explored the influence of social media on purchase intention, behavioral intention, satisfaction, purchase decision, and loyalty (Hossain et al., 2020; Gupta et al., 2020; Fu et al., 2020; Zhou et al., 2018; Jeneja, 2017). However, there was less focus and thus fewer studies into the impact of social media on online shopping behavior during the COVID-19 pandemic in the context of Bangladeshi consumers.

**Table 5.** Discriminant validity: Fornell-Larcker Criterion.

	Celebrity Endorsement	Live Streaming	Online Reviews	Online Shopping Behavior	Promotional Tools
Celebrity Endorsement	0.854				
Live Streaming	0.538	0.764			
Online Reviews	0.534	0.491	0.729		
Online Shopping Behavior	0.685	0.488	0.582	0.757	
Promotional Tools	0.471	0.484	0.528	0.557	0.764

According to the findings of the above analysis, three social media factors out of four had a significant and positive impact on online shopping behavior during the COVID-19 pandemic from the perspective of Bangladeshi consumers. Besides, the rest of the factors of social media have no significant positive relationship with the online shopping behavior of consumers during the COVID-19 pandemic in the country. The celebrity endorsement factor ( $\beta_2 = 0.452, t = 10.233$ ), promotional tools factor ( $\beta_3 = 0.215, t = 3.809$ ), and online reviews factor ( $\beta_4 = 0.207, t = 4.901$ ) are significantly and positively related to the online shopping behavior of Bangladeshi consumers during the COVID-19 pandemic at  $p < 0.05$ .

From the above findings, the study found that those three independent variables, like celebrity endorsements, promotional tools, and online reviews, have a significant positive relationship with the dependent variable, online shopping behavior. Based on the analysis, the researcher found that the independent variable live streaming has no significant positive relationship with the dependent variable online shopping behavior. Here, the live streaming was not supported at a significant value of 0.380, which is higher than the p value of 0.05. The study recommended that live streaming has no significant positive relationship with online shopping behavior. Based on the research, celebrity endorsement's significant value was notated at 0.000, which is lower than the p-value of 0.05. This indicates that celebrity endorsement has a significant positive relationship with consumers' online shopping behavior. Xiang et al. (2016); Zafar et al., 2021a; and Ahmed et al. (2015), also supported that celebrity endorsement has a positive impact on consumers' online shopping behavior. Based on the analysis, the researchers found that promotional tools have a positive connection with consumers' online shopping behavior. Here, the significant value of 0.00 is lower than the p-value of 0.05. Based on the study, online reviews were significant at a significant value of 0.00, which is smaller than the p-value of 0.05. This suggests that online reviews have a significant positive relationship with customers' online shopping behavior. According to Zhang and Zhu (2010); Fu et al. (2020), also supported that online reviews have a strong relationship with customers' online shopping behavior.

**7. Conclusion and implications**

During the COVID-19 pandemic, customers are purchasing their necessary products through an online platform. Customers are learning about new products being launched in the market through social media.

**Table 6.** Structural model estimates.

Path	Coefficients ( $\beta$ )	t-values	p-values	Results
Live Streaming - > Online Shopping Behavior	0.039	0.879	0.380	Rejected
Celebrity Endorsement - > Online Shopping Behavior	0.452	10.233	0.000*	Accepted
Promotional Tools - > Online Shopping Behavior	0.215	3.809	0.000*	Accepted
Online Reviews - > Online Shopping Behavior	0.207	4.901	0.000*	Accepted

Note:  $p^* < 0.05$ , based on the two-tailed test;  $t = 1.96$ .

Customers are safely purchasing their products through online shopping behavior during the corona pandemic. The study has been conducted with the objective of exploring the impact of social media on online shopping behavior during the COVID-19 pandemic from the perspective of Bangladeshi consumers. Different aspects of social media are important tools to guide consumers' online shopping behavior during the coronavirus pandemic in Bangladesh. This research studies the influence of live streaming, celebrity endorsements, promotional tools, and online reviews on consumers' online shopping behavior during the coronavirus pandemic in the context of Bangladesh. The results of the research has revealed that celebrity endorsement, promotional tools, and online reviews had a positive significant impact on online shopping behavior in the perspectives of Bangladesh. In contrast, live streaming had no significant positive relationship with the online shopping behavior of consumers during the COVID-19 pandemic. The research paper provides practical guidelines for online-based business organizations on how to effectively use social media platforms for business target advertising and promotional activities. Customers are also motivated to purchase through social media because of positive online reviews and trustworthy celebrity endorsements.

**7.1. Theoretical implications**

Day by day, people are becoming more accustomed to online shopping during the corona pandemic. Most people have connected with social media like Facebook, Twitter, Pinterest, YouTube, WhatsApp, and so on. Social media has a positive impact on online shopping behavior. Customers are watching different advertisements via social media, and they are motivating consumers to shop online. The study has proven that celebrity endorsements, promotional tools, and online shopping have a significant positive impact on online shopping behavior. In the meantime, with the development of social media, the influences on online shopping are increasing. During the coronavirus pandemic, social media-based marketing has also attracted the attention of enterprises. However, there has recently been little research studying the relationship between social media and online shopping behavior. To compensate for the gap, this research has been based on the impact of social media on online shopping behavior. Live streaming has no significant relationship with online shopping during the COVID-19 pandemic. On the other hand, celebrity endorsement has a significant positive connection with online shopping behavior. Besides, promotional tools and online reviews have a positive impact on online shopping behavior during the corona pandemic. Business organizations are highly focused on social media-based promotional activities. Consumers have adjusted their online shopping behavior during the COVID-19 pandemic.

**7.2. Practical implications**

Introducing celebrity endorsements, promotional tools, and online reviews of social media constructs have a positive connection with online shopping behavior during a COVID-19 pandemic. The research paper yields several practical suggestions for social commerce sellers and e-commerce-based organizations. First, the research results illustrated that celebrity endorsements have a positive relationship with customers' online shopping behavior, which includes attractive celebrities, celebrities, and recognizable celebrities. Hence, social commerce

sellers who have not until now accepted celebrity endorsements for promotion should adopt celebrity endorsements that help increase the consumer's online shopping behavior. When famous or attractive celebrities talk about products and live streaming products, then customers are stimulated to purchase those products through the online market. Celebrity endorsers should have clear knowledge about product features before motivating them to purchase those products via online shopping.

Second, the research results showed that promotional tools constructed by social media have a significant positive connection with online shopping behavior. E-commerce sellers should promote promotional activities to increase the sales volume of online shopping. Besides, they should have used re-targeting advertising via social media to enhance online shopping behavior.

Third, the study also found that online reviews have a significant positive relationship with online shopping behavior during the corona pandemic. Potential customers' positive reviews or good ratings influence potential customers' online shopping behavior. To connect with current and potential customers, e-commerce business sellers should have Facebook pages, Twitter accounts, Instagram accounts, and so on. The social media seller requests that customers give reviews about their product features, price, and quality via social media. Actual customers' positive reviews are highly motivated by other actual and potential customers' purchases through an online business.

## 8. Limitations and future research

In the study, the main objective was to investigate the major influencing factors that impact consumers' online shopping behavior during COVID-19 outbreaks. The research paper has several limitations. For instance, in the literature, there are several antecedents of the impact of social media on online shopping behavior, but in this study, the researchers only used four antecedents, like live streaming, celebrity endorsement, promotional tools, and online reviews. Future research should add more antecedents in their research paper with four antecedents. Second, this study used an online purposive sampling technique to investigate the impact of social media on consumers' online shopping behavior. The research will be recommended that for future research, they should use experimental methods to measure customers' online buying behavior through social media. Third, due to the COVID-19 pandemic outbreaks, data was collected from respondents through an online survey using a self-administered questionnaire. For that reason, in some cases, it was not possible to know more properly about the respondents. Field-level surveys and face-to-face interview methods should be used to collect data for further research to address the problem of false information and data. Fourth, current research is based on quantitative information but may differ in results when applying qualitative information. Future research should apply a combination of quantitative and qualitative data analysis.

## Declarations

### Author contribution statement

Md Rukon Miah: Conceived and designed the experiments; Performed the experiments; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Afzal Hossain: Conceived and designed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper; and Corrected proof.

Rony Shikder: Performed the experiments; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Tama Saha: Performed the experiments; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Meher Neger, PhD: Conceived and designed the experiments; Analyzed and interpreted the data; Overall Supervision of the Study.

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## Data availability statement

Data will be made available on request.

## Declaration of interest's statement

The authors declare no conflict of interest.

## Additional information

No additional information is available for this paper.

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