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The hidden keys to customers satisfaction in the booming cloud kitchen industry of Bangladesh

Las claves ocultas de la satisfacción del cliente en el floreciente sector de la cocina en nube de Bangladesh

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RESUMEN

Este estudio explora los factores más influyentes en la satisfacción del consumidor en el próspero negocio de la cocina en la nube en Bangladesh, teniendo en cuenta las percepciones cambiantes y los avances tecnológicos. Hemos analizado cómo afectan a la satisfacción en el mercado bangladeshí factores como el precio, la calidad, la velocidad de entrega, el servicio al cliente y la comparación social. El objetivo de este estudio es conocer en profundidad los factores que afectan significativamente a la satisfacción del consumidor en relación con el sector de la entrega de comida a domicilio. Así, nuestra pregunta de investigación es: ¿Cuáles son los factores que afectan a la satisfacción del consumidor en relación con las cocinas en la nube en Bangladesh? Para establecer relaciones causales entre las variables latentes encontradas, esta investigación utilizó un enfoque cuantitativo mediante un diseño no experimental. Los encuestados, seleccionados mediante un procedimiento de muestreo aleatorio, dieron como resultado una muestra total de 308 personas. Los datos se recogieron mediante un cuestionario de encuesta y una escala Likert de 5 puntos, y se analizaron mediante procedimientos SEM. El estudio indica que criterios como el precio, la calidad, la rapidez de entrega, el servicio al cliente y la comparación social afectan predominantemente a la satisfacción del consumidor. Sin embargo, el presente estudio indica que cuando la calidad y el servicio son excelentes, el coste pasa a ser irrelevante a la hora de afectar a la felicidad

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general del consumidor. El estudio ha examinado de nuevo el funcionamiento de la cocina en la nube en lo que respecta a la importancia del precio, la calidad, la velocidad de entrega, el servicio al cliente y la comparación social, junto con su efecto en la felicidad del consumidor. Difiere de los modelos habituales basados en el precio y traza territorios inexplorados; ofrece nuevas perspectivas en el mundo de las cocinas en nube.

PALABRAS CLAVE

Cocinas en la nube; Satisfacción del cliente; Rapidez de entrega; Calidad; Atención al cliente; Comparación social; Estrategia de precios.

ABSTRACT

This study explores the most influential factors of consumer satisfaction in the thriving cloud kitchen business in Bangladesh, considering changing perceptions and advancements in technology. We've looked at how these factors such as price, quality, delivery speed, customer service, and social comparison affect satisfaction in the Bangladeshi market. The objective of this study is to provide in-depth knowledge of the factors significantly affecting consumer satisfaction regarding the food delivery industry. Thus, our research question is: What are the factors affecting consumer satisfaction related to cloud kitchens in Bangladesh? To establish causal relationships among latent variables found, this research used a quantitative approach through a non-experimental design. The respondents, selected by a random sampling procedure, resulted in a total sample of 308 people. Data were collected through survey questionnaire and 5-point Likert scale and were analyzed using SEM procedures. The study indicates criteria such as price, quality, speed of delivery, customer service, and social comparison predominantly affect consumer satisfaction. However, the present study indicated that when quality and service are excellent, cost mostly becomes irrelevant in affecting the overall consumer happiness. The study has looked afresh at the cloud kitchen operation regarding the importance of price, quality, delivery speed, customer service, and social comparison, along with their effect on consumer happiness. It differs from the usual price-based models and charts unexplored territories; it offers new insights into the world of cloud kitchens.

KEYWORDS

Cloud Kitchens; Customer Satisfaction; Delivery Speed; Quality; Customer Service; Social Comparison; Pricing Strategy.

Clasificación JEL: M31, D12, R30.

MSC2010: 91B84, 62P20, 68U35, 91B76, 90B50.

1. INTRODUCTION

1.1. Historical Background

The boom envisaged in the cloud kitchen business in Bangladesh is likely to be the result of augmented online meal delivery, changing customer expectations, and operational efficiency accruing from the cloud-based models (Othman et al., 2021). Additional market estimates are witnessing a strong trajectory, while the existing market value of $ 110 million is poised to reach a humongous amount of $ 280 million by 2027 to provide a robust CAGR of 18.24 %. First, it became apparent with a 15 % increase in the overall capacity of functional cloud kitchens in 2023, indicating a growing demand for speedy and mixed meal options. These inductions, on

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the other hand, justify an increased gross value of food delivered through cloud kitchens (da Cunha et al., 2024). Second, the amount of food delivered through cloud kitchens is justified through the high gross estimates by (Mordor Intelligence, 2023). Third, the high potential market for future hikes by Theseus, which estimates a potential market of $2 billion by 2024 (Hosen, 2023). This expansion is supported by significant metrics, which include the growth in the number of start-ups like HungryNaki Kitchen and FoodPanda, which both have agreements with thousands of eateries. A growing number of cloud-based kitchen startups have emerged in Bangladesh. In reality, cloud kitchen startups have stormed into a massive number in Bangladesh and developed exponentially. While HungryNaki Kitchen has more than 2,500 restaurant contracts, FoodPanda has over 4,000 restaurant contracts (Bhattacharjee, 2023; Moyeenudin et al., 2020). Even food delivery websites and apps, such as UberEats and Shohoz Meal, act as influencers for consumer interest in cloud kitchens, which have seen heavy expansion in users across Bangladesh (Ahmed Khan et al., 2022).

The food environment in Bangladesh has changed radically over the last few years. There has been a clear trend away from food prepared at home and from small cafes toward a more modern eating-out environment (Bhattacharjee, 2023; Mehnaz et al., 2021). This change is fueled largely by the growth of cloud kitchens—a nifty new concept that's convenient, prices pretty low, and offers abundant variety. Cloud kitchens are a recent phenomenon, and so they reflect how people across Bangladesh eat and have come up as a response to an after-effect of changing customer tastes and the extremely dynamic character of the restaurant industry (Moyeenudin et al., 2020; Tualeka, 2024). Cloud kitchens are a growing trend across Bangladesh, with a major focus such as identifying the principal factors that affect users' satisfaction (Fridayani et al., 2021; Hosen, 2023).

Currently, scholarly discourse has brought to the forefront the new literary landscape of the cloud kitchens in Bangladesh. The results of recent research show us the real-life situation of many cloud kitchens. (Adam, 2023; J. U. Ahmed, 2017) researched the possible cloud kitchen model advantages in Dhaka and highlighted the opportunities these new cloud kitchen companies bring to the country as they spring up like a bouquet of flowers. The research highlights the potential for scaling up and inventiveness, thus making it a very attractive choice for the new food innovators who are operating in Dhaka's dynamically changing market. In the same way, (Hosen, 2023) investigates the possibility of cloud-based food companies and the client's buying behavior. (Ahmed Khan et al., 2022) proposes the "Cookups.com" initiative, which connects home kitchens with customers in Bangladesh, giving data about cloud kitchen operations. (Ahmed and Ahmed, 2018) Examining the roots of cloud kitchen firms in Bangladesh, this research also discusses Kludio, the food-tech company that was the first to introduce the concept, and its power-source technology. (Ahmed Khan et al., 2022) investigated the ethical and sustainable issues in the cloud kitchen industry during the COVID-19 pandemic as well as the challenges that this new model is facing. Finally, (Chandan, 2020; Shahhosseini & Khalili Nasr, 2024) acknowledged the spread of Internet food shops in Bangladesh while also introducing the new notion of cloud kitchens. This piece of research provides a comprehensive and dynamic view of the cloud kitchen scene in Bangladesh, from its inception to its present evolution, effectively establishing it as an emergent and more significant force in the country's culinary industry.

Despite the growing curiosity about cloud kitchens in Bangladesh's culinary environment, a crucial study vacuum in the precise aspects that lead to customer pleasure in this setting remains (Susilowati et al., 2021). Notably, there has been a lack of quantitative studies into cloud kitchens, with most existing studies providing qualitative or exploratory views. While several studies emphasize the growth and promise of cloud kitchens, there has been little investigation into the factors that contribute to user happiness (Othman et al., 2021). With this in mind, there is a dire need for rigorous quantitative research that explores the elements that affect satisfaction. Such a study would not only fill a significant gap in the current literature but also provide useful restored insights for firms operating in this space (Lahiri et al., 2024; Vaughan, 2022).

1.2. Objective of the Study

The main objective of this study is to help bridge the significant research gap in consumer satisfaction within Bangladesh's fast-growing cloud kitchen industry. This research tries to identify and evaluate those critical factors affecting consumer satisfaction, including price, quality of food, efficiency in delivery, customer service, and social comparison. Quantitative in nature, the study provides empirical evidence regarding how these characteristics affect total consumer satisfaction. This is imperative, given that most of the perspectives in the domain have been qualitative; thus, it tries to proffer a bridge by offering intense data-driven analysis. Practical recommendations will also be provided to the owners of the cloud kitchen businesses, thus supporting service optimization and enhancement of customer experience. Additionally, unusual or unexpected data should be further investigated in this study, in order to understand fully aspects that influence customer satisfaction. The present study will try to provide useful information for both educational research and practical use in this dynamic and expanding business.

Previous academic work primarily provides qualitative perspectives into cloud kitchens, highlighting a significant lack of quantitative comprehension. Surprisingly, only 10% of previous research has used quantitative methods to study the aspects impacting consumer happiness in cloud kitchens, with the rest relying on qualitative approaches. It is critical to include rigorous quantitative studies to back up statements about the factors of customer happiness, providing empirical validation to support decision-making in the cloud kitchen area. As such, this study tries to explore the answer to the following core research question **(RQ)**:

Core RQ: What are the key factors influencing consumer satisfaction with cloud kitchens in Bangladesh?

2. LITERATURE REVIEW

2.1 Concept of Cloud Kitchen

Cloud kitchens are distinguished by their capacity to house several culinary identities or virtual dining establishments under the same roof (Fridayani et al., 2021). Within an identical shared cooking area, several virtual brands can function independently, each delivering various cuisines or items on the menu to appeal to a wide range of consumer tastes. Customers may place orders through these virtual kitchens via an app or web platform, and the food is made and dispatched for home pickup or distribution (Tulsian, 2021; Upadhye & Sathe, 2020). Cloud kitchens, additionally referred to as ghost kitchens as well as virtual kitchens, are a new culinary paradigm that has gained significant traction in recent years. According to the cloud kitchen business, the global cloud kitchen industry was worth $43.1 billion in 2022 and is projected to grow at a CAGR of 12.5% from 2023 to 2028. Thus, the model is gaining more and more acceptance in the food sector (Švancár et al., 2024). The idea of cloud kitchens is totally different from the traditional cooking practices, delivery, and the whole eating process (Chowdhury & Haider, 2020). Cloud kitchens are superior-grade, centrally located cooking premises that are specifically designed for food preparation and delivery. Cloud kitchens are different from the usual dine-in restaurants since they don't have a physical venue where customers sit down to eat. Instead, they only accept delivery as well as takeout orders (Ahuja, 2020).

2.2 History of Cloud Kitchens in Bangladesh

The rise of cloud kitchens in Bangladesh is mainly caused by the digitization of the country and changes in consumer behavior, especially in metropolitan areas such as Dhaka (Hosen, 2023). Cloud kitchens that are sometimes called ghost or virtual kitchens started in Bangladesh in the early days when meal delivery services were becoming popular, and this was due to a mixture of factors like urbanization, busy lives, and the increased use of technology for convenience (Adam, 2023; Chandan, 2020). The COVID-19 pandemic was a time when the concept gained popularity. At that time, the traditional eating-out options were not available, and people began to order

meals online more than ever before. During this time, an inflow of startups and established restaurants jumped into the idea of cloud-based kitchens to meet the growing demand for home-delivered meals (Choudhary, 2019). Ghost kitchen restaurants are 100 % delivery-oriented and do not rent space for customers. Therefore, these companies are able to spend less on overhead and streamline their operations (da Cunha et al., 2024; Lahiri et al., 2024; Sharma & Kumar, 2024).

Cloud kitchen in Bangladesh is expected to grow very fast with a forecast of USD 500 million by 2025 (Bhattacharjee, 2023; Rout et al., 2024). Nevertheless, the great success of this concept can be attributed to its low operating cost, the capacity to service the tech-savvy population, and the flexibility to experiment with new tastes (Adam, 2023). The cloud kitchen, along with its capacity for strong operational procedures and consistent quality of food, has brought a permanent presence to the food sector in Bangladesh (Fridayani et al., 2021). One significant factor that contributes to the growing cloud kitchens in Bangladesh is the success of startups like Foodpanda and HungryNaki, which have proved to be indispensable in promoting online meal delivery (J. U. Ahmed, 2017; Moyeenudin et al., 2020; Sharma & Kumar, 2024; Zaman Mir & Shiraz Rahaman, 2005). For instance, Foodpanda connected its vast network to various cloud kitchens, resulting in them catering to a larger audience. On the other hand, HungryNaki was the first business to respond promptly to the increasing demand for takeout by quickly jumping on (Ahmed & Ahmed, 2018; Ahmed et al., 2022). Besides assisting in the growth of the existing cloud kitchens, the platforms in question also engendered the emergence of new ones thereby making the sector more attractive and expanding its growth (Chowdhury & Haider, 2020; Mehnaz et al., 2021).

2.3 Perceived Advantages and Disadvantages of Cloud Kitchen

Cloud kitchens have become a hot trend in the food business thanks to their core advantages and strategy-playing benefits. They provide various benefits, starting from cost-effectiveness (Hwang & Choe, 2019). Cloud kitchens can focus more on food preparation and fast delivery service by removing dine-in options and expensive locations, thus, benefiting from higher profit (Švancár et al., 2024). One more crucial benefit is operational maneuverability, which enables the organization to quickly change its production to adapt to changing market trends (John, 2023; Lapegna, 2016).

Cloud kitchens have their advantages, but they are also grappling with some problems in an increasingly competitive foodservice market. They often encounter the problem of low brand perception since the absence of a physical dining area makes it more difficult to establish a strong brand image and consumer loyalty (Zaman Mir & Shiraz Rahaman, 2005). One could view that the logistics of meal delivery might become a doubt if the company was responsible for it (Pookulangara et al., 2023). The fight between virtual brands intensifies in a fast-growing industry, so it is hard for new entrants to find their own brands. In addition, launching a cloud kitchen with advanced technologies demands a lot of capital for setting up the necessary infrastructure. As a result, though cloud kitchens have a number of advantages, they also pose huge threats that the entrepreneurs need to take care of, in order to guarantee the long-term viability of the business (Moyeenudin et al., 2020).

2.4 Exploring Customer Satisfaction in Cloud Kitchens

The cloud kitchen sector has completely shifted the way we eat with its delivery-only strategy, with customer happiness as the top priority (Srinivasan et al., 2024). Along with the rapid technological advancement and the change in consumer preferences, this change is made possible by the growing concern for the understanding of the factors that determine customer pleasure in this context (Xu et al., 2024).

2.4.1 Key Factors Influencing Customer Satisfaction

There are a few key driving variables directly influencing consumer satisfaction in cloud kitchens, according to research, including food quality, pricing strategy, delivery speed, and customer service. The availability of qualitative food has been continuously demanded by consumers since this

is the base driver of satisfaction itself; the freshness, good taste, and packing condition of the food consumed, lie at the heart of the entire eating experience (Cankül et al., 2024; Ghaderi et al., 2024; Inoni, 2024). Other critical components involve on-time delivery. Because it significantly makes an impact on client experience, and thereby operational effectiveness, there is much potential for delays in these businesses (da Cunha et al., 2024). Good pricing practices that optimally balance value and the associated cost are also needed since the clients are often price-conscious and weigh their worth in a firmament of price sensitivity. The customer service aspect, which is usually delivered through digital channels, is important in solving the concerns, managing expectations, and improving the entire experience (Cankül et al., 2024; Shahhosseini & Khalili Nasr, 2024).

2.4.2 Secondary Influences on Customer Satisfaction

While the aforementioned elements are primary, additional factors, while less important, also influence customer views. Packaging design, for example, while not as powerful as food quality or timing of delivery, influences consumer perceptions by guaranteeing that food arrives in excellent condition and contributing to the brand's image (Srinivasan et al., 2024). Menu diversity additionally serves a role; a diverse selection might appeal to different client segments, but its influence on satisfaction is sometimes overshadowed by more immediate considerations such as the quality of the food and staff efficiency (Chng, 2024; Sharma & Kumar, 2024).

2.4.3 The Role of Brand Reputation and Order Accuracy

Brand reputation, while important in generating early customer trust, has a lower influence on long-term satisfaction than direct service features (Inoni, 2024; Paul et al., 2024; Sharma & Kumar, 2024). A good brand can entice customers, but what customers actually experience-particularly the standard of food and delivery-has a greater influence on customer loyalty and happiness. Order accuracy, while crucial, has a minimal impact on overall satisfaction if contrasted to the critical criteria of meal quality and delivery time. Ensuring correct orders is critical for avoiding unhappiness, but it doesn't always considerably increase satisfaction until other major elements are satisfied (Paul et al., 2024; Rout et al., 2024; Švancár et al., 2024).

2.4.4 Necessity for Empirical Confirmation in Research

Even though the previous studies are useful in providing insights, the quantitative analysis of these components still remains at a considerable gap. Most of the research in this domain provides qualitative insights only, thereby indicating the crucial need for extensive empirical validation to appreciate the complexities involved in customer satisfaction regarding cloud kitchens (Lahiri et al., 2024). This is the vacuum that future studies will use with great potential for rigorous quantitative approaches to ensure that consumer behavior in this fast-changing area is acquired in a more comprehensive and empirical way. These studies may consider the relative importance of the many elements and their interactions for practical information on how to help firms interested in enhancing customer happiness (Tualeka, 2024; Xu et al., 2024).

The study, therefore, starts to build a proper premise from which the main drivers of customer delight in cloud kitchens can be identified, yet secondary factors are also not rejected as insignificant. The identification of essential and secondary factors broadens the view on consumer happiness and, therefore, opens more perspectives for further research and practical modifications in business. In the case of further growth in the number of cloud kitchens, the experimental verification of such findings will be necessary along the road of working out procedures capable of both meeting and surpassing consumer expectations.

3. THEORETICAL FRAMEWORK

The theoretical basis of two important concepts leads to shaping the ideation of key concepts and drivers against the context of consumer delight concerning cloud kitchens in Bangladesh. In accordance with (Halstead, 1999). The Comparison Level Theory (CLT) states that enjoyment is in-

herently linked to an individual subconscious match between what one desires and actually receives, rather than a mere post-consumption evaluation. Meanwhile, the theoretical support from the base of the Evaluative Congruity Theory (ECT) provides a dual-process model on the formation and modification of attitudes with a focus on the emotions of evaluative ideas on what comprises the conceptual base of this study and shall elucidate the delicate dance between standards, emotions, and customer behavior in the context of cloud kitchens (Linder-Pelz, 1982).

3.1 Comparison Level Theory (CLT)

In 1978, Elaine Walster and associates introduced the Comparison Level Theory, or CLT, which is an ideal comparison of what one can expect versus what comes out for that person (Kim et al., 2014). This new social psychology-based theory still maintains that enjoyment is based on the cognitive evaluation of whether the expectations were fulfilled in particular with pricing, quality, and performance (Anderson & Fishbein, 1965). CLT is especially important in the overall setting of cloud kitchens since it emphasizes how the alignment of expected and actual service quality influences user happiness (Srinivasan et al., 2024). This study, based on CLT, is intended to explain how discrepancies between what customers expect from cloud kitchens in respect of delivery on time or quality food issues, and what they receive, add up to their overall happiness and provide important insights with respect to customer behavior in this emerging field. Moreover, the study of these traits in the more general context of cloud kitchens across Bangladesh would easily depict how these factors interact in influencing customer happiness and provide useful data to the emerging market (Lorimor & Dunn, 1968).

3.2 Evaluative Congruity Theory (ECT)

The Evaluative Congruity Theory (ECT) is a theory developed by social psychologists in the 1980s, such as Perdue and Summers, that explores how attitudes can be developed and changed by mixing evaluations with social comparisons. ECT is particularly relevant to customer happiness in cloud kitchens, creating a spur to emotional and cognitive congruence. This hypothesis allows some depth for the research into how psychological responses, for instance, of pricing, quality, and service quality, affect customer perception and satisfaction. This study makes use of ECT to understand, in greater depth, the dynamic interface of these appraising concepts and their associated emotions, through a detailed exploration of how they impact consumer behavior specifically, in a cloud kitchen context. This enables a deeper analysis of feelings and intellectual receptors that determine customer happiness with their services. Sensible for firms wishing to improve their service offers, it's a very important approach.

3.3 Hypothesis Development

These theories underpin two fundamental notions-Comparison Level Theory (CLT) and Evaluative Congruity Theory (ECT). CLT stimulates assumptions linked to pricing, quality, time of delivery, and customer satisfaction by concentrating on the effects of customer experiences and expectations. ECT rests on social comparison assessment theory, which underscores the social factors of customer satisfaction. The forecasts are also underpinned by the previous research that investigated the interaction of these with consumer pleasure in multifarious service contexts (Islam et al., 2021; Akmal, Panjaitan and Ginting, 2023; Biswas and Verma, 2023; Cepeda-Carrión et al., 2023; Chinelato, Oliveira and Souki, 2023; Ginting et al., 2023; Ragaa, Elbayomy and Metwally, 2023; S. Ahmed et al., 2023; Twum et al., 2023; Wang, Kim and Kim, 2023).

3.3.1 Price (P)

The idea stands on the Comparison Level Theory - CLT. According to CLT, individuals assess their satisfaction by comparing expectation levels against actual outcomes; price is a large influencer in these expectations (Halstead, 1999). Price expectations within the Cloud Kitchen framework mean affordability, value for money, and cost-performance ratio (Islam et al., 2021). It is, therefore, likely that at a time when clients perceive the prices of foodstuffs to be appropriate for

their expectations, they would actually be satisfied (J. U. Ahmed et al., 2023). This hypothesis, by identifying price as a key factor, allows for deeper analysis concerning its impact on customer satisfaction in line with CLT principles. Hence, the hypothesis would be as follows:

H1: In cloud kitchens, price (P) significantly increases consumer satisfaction.

3.3.2 Quality (Q)

This idea is underpinned by the Change of Comparison Level Theory - CLT. In accordance with (Akmal et al., 2023), CLT, the consumer's satisfaction level is all about comparing expectations with actual encounters. A significant constituent of these expectations is indeed quality, which is inclusive of flavor, freshness, and overall culinary experience. It would also be highly reasonable to assume that customers, once convinced the quality of food provided is up to their level of expectation, would create contentment. According to CLT as investigated by(J. U. Ahmed et al., 2023; Islam et al., 2021), this should be based on the hypothetical testing of excellence as a critical dimension with regard to being able to conduct a specific analysis of its impact on customer happiness. Thus, the hypothesis is:

H2: In the cloud kitchen context, the quality (Q) of the food significantly increases consumer satisfaction.

3.3.3 Delivery Speed (DS)

The idea here is based on the Comparison Level Theory, CLT. CLT has demonstrated that consumer satisfaction originates through a process of comparison between expectations and actual experiences (Auad et al., 2023). Since quickness of meal delivery is a major expectation in the context of cloud kitchens, therefore, logically, if customers feel the pace of delivery matches what they are looking for, they are more likely to be satisfied (Cepeda-Carrión et al., 2023). Based on the fundamentals of CLT, the following hypothesis identifies delivery speed as a fundamental factor and allows for concentrated research into its effect on consumer joy:

H3: In the cloud kitchen context, delivery speed (DS) significantly increases consumer satisfaction.

3.3.4 Customer Service (CS)

This idea is espoused by what is called the Comparison Level Theory, or CLT. CLT postulates that individuals judge their satisfaction based upon the comparison between what they expect and what they actually experience (Ginting et al., 2023). Customer satisfaction is a general and overall perception of the service experience (Twum et al., 2023). It should therefore make sense that, when customers perceive that, in general, there is a high level of customer satisfaction, this affects their satisfaction with cloud kitchens (Biswas & Verma, 2023). This hypothesis seeks to center on client satisfaction as especially important, allowing for an in-depth study on how this could impact consumer satisfaction in line with CLT. This would therefore be the consequence: the hypothesis is as follows:

H4: In cloud kitchens, good customer service (CS) significantly increases consumer satisfaction.

3.3.5 Social Comparison (SC)

The theoretical basis for this is based on the Evaluative Congruity Theory. ECT maintains that attitudes are always Social Comparisons. People generally appraise their opinions and attitudes in relation to their socio-economic reference groups (Kim et al., 2014). In this context, congruity occurs when customers perceive their choices and experiences as meshing well with what is expected of them from their friends or members of the social community, they are part of in the cloud cooking environment (Wang et al., 2023). Thus, based on ECT, positive social comparison evaluations have a profound impact on customer happiness since such views strengthen the

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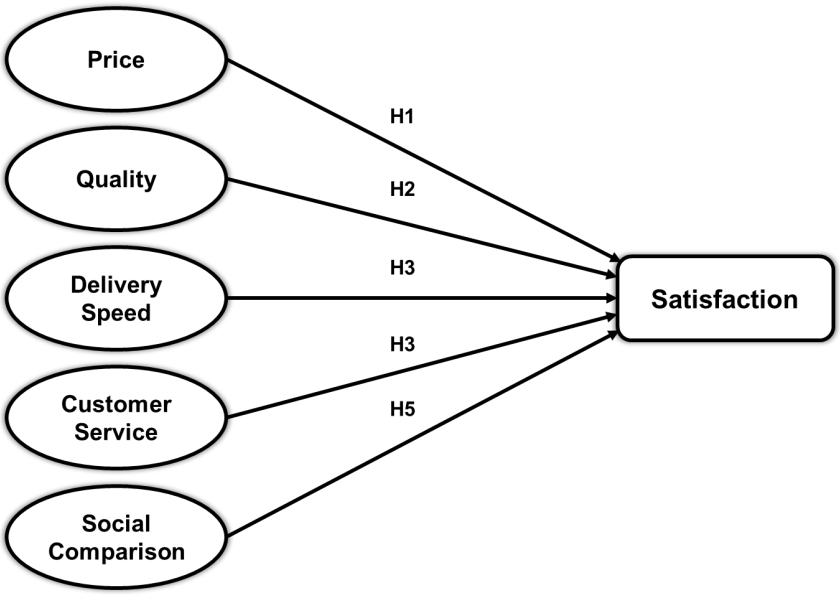
perceived realignment of individual choices and the forces of society (Chinelato, Oliveira, et al., 2023; Ragaa et al., 2023a). Hence, the hypothesis can be stated as:

> H5: Positive social comparison (SC) assessments significantly increase consumer satisfaction regarding cloud kitchens.

3.4 Proposed Model

Figure 1: Proposed Model



Source: Authors

4. MATERIALS AND METHOD

4.1 Research Design and Methodology

This research, therefore, uses a quantitative approach to ascertaining how cloud kitchen use influences consumer satisfaction using a non-experimental method. It intends, in essence, to verify if the use of cloud kitchens positively impacts consumers' happiness. Guided by findings from previous research, this study identified major factors and developed a new conceptual model that forms a platform for further statistical analysis. This study used SEM as an analytical method to find relationships among these variables and, hence, solve the basic research problem by using a dataset of 269 valid responses.

4.2 Sampling

The study has used strong random sampling for representativeness of reliability and validity. Out of 308 responses, 269 were fit for analysis after matching the specific criteria provided by the controlled questions. The controlled questions were targeted toward ascertaining knowledge about ordering food from cloud kitchens and their usage frequency. In all, those not meeting the specified criterion of having used cloud kitchen services once a month were removed from the

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valid sample to ensure the relevance of the sample. The controlled questions were regarding measuring the knowledge about ordering meals from cloud kitchens and their frequency of use. Those subjects who did not fulfill the criteria of having used cloud kitchen services at least once a month were removed from the valid sample.

A pilot study was conducted on 30 respondents to check the validity and efficiency of the questionnaire for gathering the information required. The results of the pilot test gave a good basis for refining the questionnaire, which showed that it well captured the elements of interest. Also, to negate the presence of interviewer effects, it was intended that the questionnaire be self-administering, with the respondent's guaranteed anonymity in order to get candid responses. Table 1 describes the sample's respondents based on age range, distribution of sex, income level, and frequency of the use of cloud kitchens.

The large sample size apart, the random mode of sampling add to the confidence levels of results that might be generalized to a wider group of cloud kitchen users. These methods were employed in the study with the aim of minimizing possible biases while ensuring reliability and validity. It therefore increases the representativeness of the sample, especially when combined with a random sampling technique, and confidence in the generalization of results to the wider community of cloud kitchen users.

4.3 Instruments

Using Microsoft Forms, a web-based survey questionnaire was systematically developed, which mainly contained two major parts. The first part comprised eight important demographic attributes. The second part contained 28 items for testing the latent variables of the model. The measurement of these 28 items was done using a 5-point Likert scale, ranging from "Strongly Disagree" to "Strongly Agree," denoted 1 to 5, respectively, in a way that assured comparability with later statistical analysis. The data processing step was accomplished using IBM SPSS 26, which provides full data handling. Secondly, IBM Amos 24 conducted the structural equation modeling, hence enabling a detailed and comprehensive statistical test on the data in this research.

4.4 Procedure

The research strategy of this study started with a review of the literature to generate hypotheses that identify the main motivations for using cloud kitchens. It also identified behavioral characteristics impacted by cloud kitchen utilization, building on previous scholarly studies. Following this first phase, a rigorously developed electronic questionnaire containing demographic characteristics and the aforementioned behavioral aspects was delivered to participants electronically via email, WhatsApp, and different social media platforms. The study then proposed a unique conceptual framework based on these discovered elements, which was then submitted to comprehensive statistical analysis using valid participant answers. The goal was to uncover and evaluate the causal links critical to answering the key study issue. This study included a combination of inferential and descriptive statistical approaches, as well as software tools that include SPSS and Amos, to give an in-depth comprehension of the causal links between the latent variables that are under consideration.

5. ANALYSIS AND FINDINGS

5.1 Demographic Analysis

The demographic analysis provides information on the characteristics of the participants. The demographic analysis gives a detailed summary of the research participants' characteristics. The sample comprises 269 people (87.33%) who use cloud kitchens while purchasing meals online and 39 people (12.66%) who do not. The bulk of respondents (113, or 36.67%) reported a frequency of 5–10 times a month. These demographic differences will be taken into account while investigating the correlations between factors and customer satisfaction in cloud kitchens.

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Table 1: Demographic Profile of Respondents

Variables	Category	Frequency	Percentage
Gender	Female	118	43.9%
	Male	151	56.1%
Age	18-24 years old	225	83.6%
	25-29 years old	25	9.3%
	30-39 years old	16	5.9%
	Below 18 years old	3	1.1%
Marital Status	Married	28	10.4%
	Unmarried	240	89.2%
	Divorced/Separated	1	.4%
Educational Background	English medium	1	.4%
	Honors/Bachelors	192	71.4%
	HSC	55	20.4%
	Masters	15	5.6%
	SSC	6	2.2%
Occupation	Executive/Manager	10	3.7%
	Government Service	1	.4%
	Professional	9	3.3%
	Self Employed/Own Business	16	5.9%
	Student	233	86.6%

Variables	Category	Frequency	Percentage
Monthly Family Income	Above 1,00,000 BDT	27	10.0 %
	30,000 - 50,000 BDT	67	24.9 %
	50,000 - 80,000 BDT	51	19.0 %
	80,000 - 1,00,000 BDT	17	6.3 %
	Below 30,000 BDT	107	39.8 %
Do you utilize cloud kitchens when you purchase meals online?	Yes	269	87.33 %
	No	39	12.66 %
How frequently do you use cloud kitchens when purchasing foods?	Never	23	7.46 %
	Once a Month	16	5.19 %
	2-5 times a Month	89	28.89 %
	5-10 times a Month	113	36.67 %
	More than 10 times in a Month	28	9.09 %

Source: Authors

5.2 Exploratory Factor Analysis (EFA)

An exploratory factor analysis (EFA) was undertaken to acquire a better understanding of the numerous factors that may influence customer satisfaction. The principle components technique with variable rotations was used to study the elemental structure and relationships among the scale items. Table 2 shows the results derived from the rotated factor matrix.

Table 2: KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.806
Bartlett's Test of Sphericity	Approx. Chi-Square	2668.436
	df	153
	Sig.	.000

Source: Authors

The Kaiser-Meyer-Olkin (KMO) Test of Sampling Adequacy was performed to determine if the data was suitable for factor analysis. The KMO score of 0.806 shows that the dataset passes the sampling adequacy criteria. Bartlett's Test of Sphericity was used to determine whether the

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correlation matrix diverged significantly from the identity matrix. The test yielded an estimated Chi-Square value of 2668.436 and a significant p-value of.000 (P.05) with 153 degrees of freedom. This result demonstrates that the Pearson correlation matrix was statistically different from an identity matrix, validating the data's suitability for factor analyses.

Table 3: Rotated Factor Matrixa

Rotated Component Matrix[a]						
	Component					
	1	2	3	4	5	6
P2		.887				
P3		.890				
P5		.830				
Q1			.895			
Q2			.884			
Q3			.746			
DS2					.809	
DS3					.823	
DS5					.784	
CS3	.837					
CS4	.874					
CS5	.877					
SC2				.820		
SC4				.836		
SC5				.853		
S1						.822
S2						.812
S3						.770
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.						
a) Rotation converged in 6 iterations.						

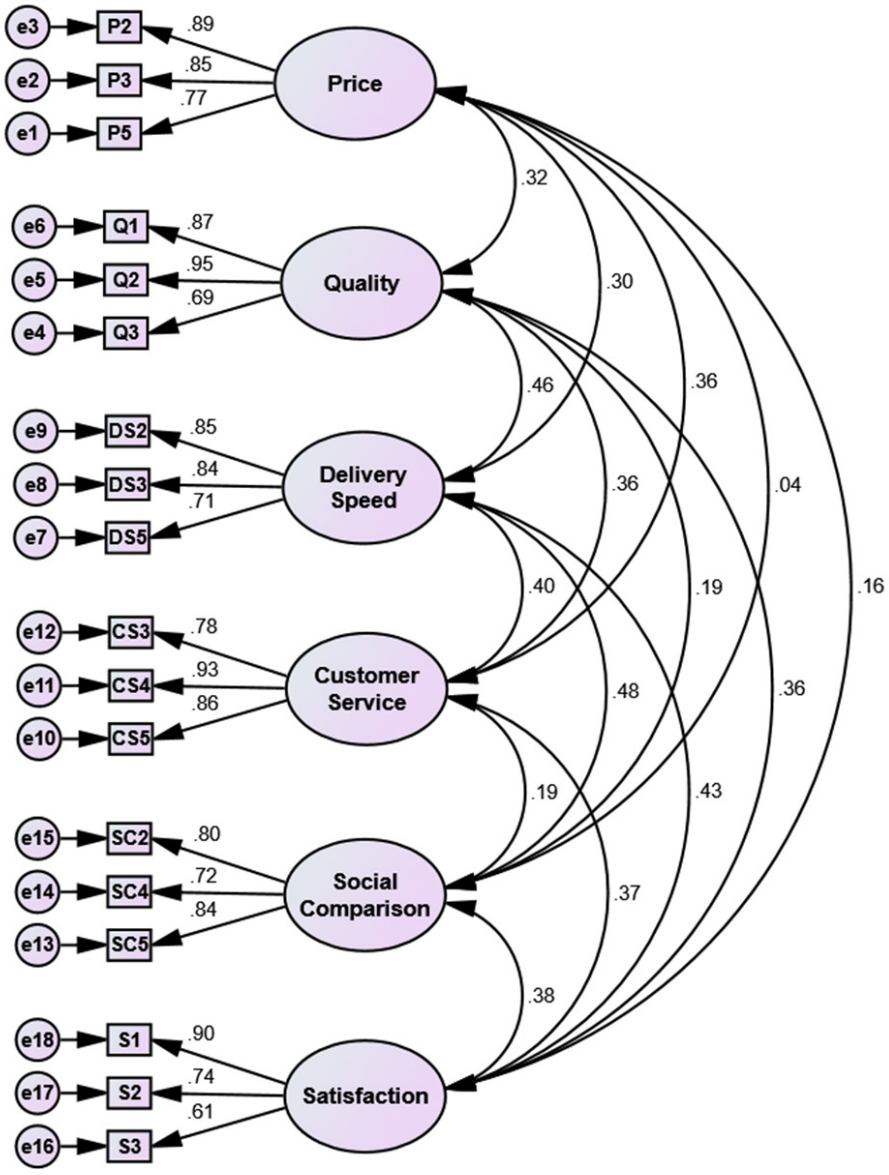
Source: Authors

The EFA findings supported our hypotheses about a six-factor solution, including all elements having significant loadings on the corresponding factors. This solution accounts for 78.02% of the total variance, showing that the underlying components are thoroughly covered. Items that weren't com-

patible with the factor structure, for instance (P1, P4, DS1, DS4, CS1, CS2, SC1, and SC3), were removed since their factor loadings did not meet the 0.7 requirement. This verified that the elements were strong and coherent, hence proving the validity of our criterion. The study then employed confirmatory factor analysis (CFA) to validate our findings, which are discussed in the following sections.

5.3 Confirmatory Factor Analysis (CFA)

Figure 2: CFA Model



Source: Authors

To examine the reliability, convergent validity, and discriminant validity of our assessment model, we used Confirmatory Factor Analysis (CFA) using AMOS version 24. CFA investigates the relationships between observable indicators and latent constructs, including factor loadings and cross-loadings. **Table 4** has a comprehensive overview of the findings.

5.4 Reliability and Validity

Table 4: Convergent Validity and Reliability

Variables/ Constructs	Items	Standardized Factor Loadings	Cronbach Alpha	Composite Reliability	Average Variance Extracted	Maximum Shared Variance
Price	P2	0.887	0.872	0.875	0.700	0.131
	P3	0.890				
	P5	0.830				
Quality	Q1	0.895	0.866	0.876	0.706	0.215
	Q2	0.884				
	Q3	0.746				
Delivery Speed	DS2	0.809	0.840	0.844	0.646	0.227
	DS3	0.823				
	DS5	0.784				
Customer Service	CS3	0.837	0.890	0.892	0.735	0.161
	CS4	0.874				
	CS5	0.877				
Social Comparison	SC2	0.820	0.826	0.829	0.618	0.227
	SC4	0.836				
	SC5	0.853				
Satisfaction	S1	0.822	0.788	0.797	0.574	0.186
	S2	0.812				
	S3	0.770				
Model Fitness: X2=225.779, df=120, X2/df= 1.881, RMSEA=.057, RMR=.046, GFI=.918, CFI=.959, SRMR=.0499						

Source: Authors

The model fit was assessed using many indices, including Cmin/df = 1.881, GFI = 0.918, CFI= 0.959, SRMR = 0.0499, RMSEA = 0.057, and RMR = 0.046. The findings show good model fit, with GFI and CFI values above the conventional requirements. The SRMR evaluates minimal standardized residual discrepancies, which improves the model's appropriateness. Although the RMSEA value is somewhat higher than ideal, it is within acceptable limits. The estimated model fit provided X2 = 225.779, df = 120, and an X2/df ratio of 1.881, which are all within acceptable limits. The results follow standard norms, with RMSEA < 0.08, RMR ≤ 0.05, and CFI > 0.90 indicating a well-fitting model. All items' standardized factor loadings were greater than 0.60, while AVE values surpassed 0.50, indicating high convergent validity. Cronbach's alpha and composite reliability ratings were

both greater than 0.70, suggesting that the model was very reliable. Since these results confirm the validity and reliability of the model, further investigation has been well-grounded.

Table 5: Discriminant Validity

	Price	Quality	Delivery Speed	Customer Service	Social Comparison	Satisfaction	
Price	0.886	**0.837**					
Quality	0.926	0.322***	**0.840**				
Delivery Speed	0.859	0.304***	0.463***	**0.803**			
Customer Service	0.913	0.362***	0.357***	0.401***	**0.857**		
Social Comparison	0.838	0.042	0.195**	0.477***	0.187**	**0.786**	
Satisfaction	0.858	0.160*	0.361***	0.431***	0.367***	0.381***	**0.757**

***<.05, **<.01, *<.001
Source: Authors

We applied the (Fornell & Larcker, 1981) criteria to test for discriminant validity. It follows from the correlation matrix that AVE roots are greater than the inter-variable correlations, which indicates the respective constructs have strong discriminant validity. The AVE root of every construct was found to be greater than the correlation with other constructs, indicating that each of the constructs mirrored different latent variables.

We also applied the HTMT method also known as the heterotrait-monotrait correlation ratio by adopting the threshold of 0.90 (Henseler et al., 2015). **Table 6** results show that the HTMT ratios for all latent constructs are below this threshold, hence leading to the inference that the latent variables are distinct and do not represent the same concept. This extensive validation makes sure that everything relevant under consideration is captured by the model and enhances the dependability and strength of the results.

Table 6: Discriminant validity based on HTMT ratios.

	Price	Quality	Delivery Speed	Customer Service	Social Comparison	Satisfaction
Price						
Quality	0.322					
Delivery Speed	0.326	0.480				
Customer Service	0.360	0.387	0.429			
Social Comparison	0.054	0.240	0.477	0.188		
Satisfaction	0.182	0.432	0.433	0.383	0.373	

Source: Authors

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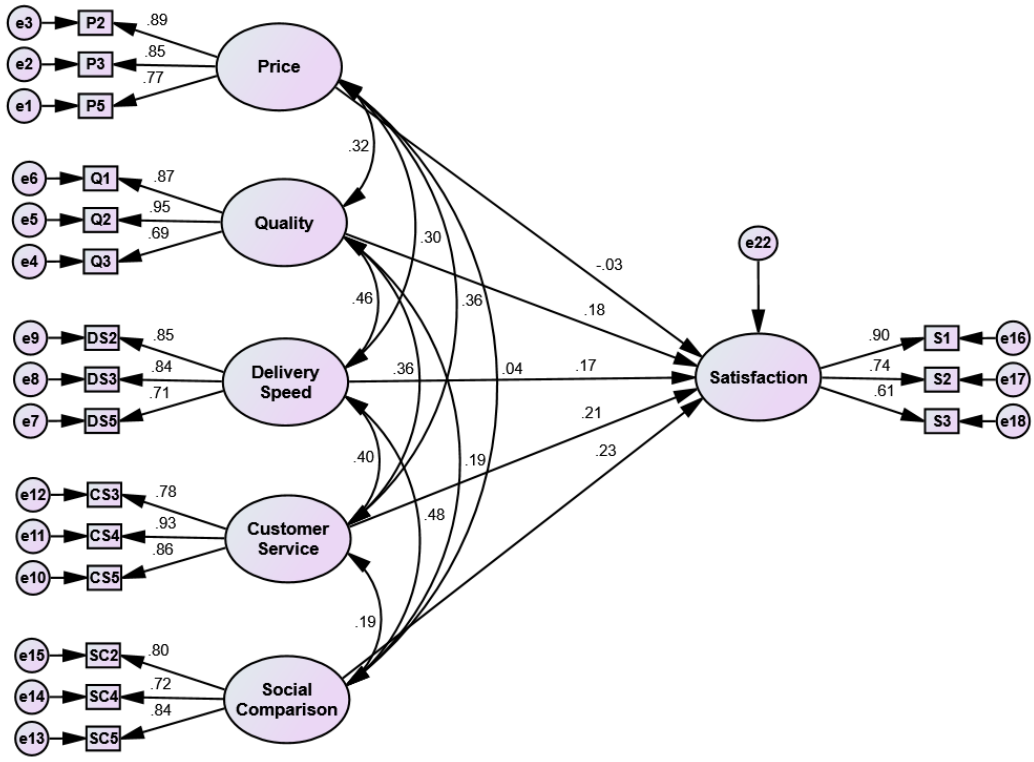
5.5 Path Analysis

Figure 3: Research Model with Results



Source: Authors

5.5.1 Hypothesis Results

Table 7: Results of Path Analysis

H) No.	Paths	Estimate	S.E.	C.R.	P	Remarks
H1	Satisfaction < Price	−0.052	0.116	−0.446	0.655	Not Supported
H2	Satisfaction < Quality	0.353	0.148	2.39	0.017	Supported
H3	Satisfaction < Delivery Speed	0.234	0.125	1.871	0.061	Moderately Supported
H4	Satisfaction < Customer Service	0.254	0.089	2.867	0.004**	Supported
H5	Satisfaction < Social Comparison	0.247	0.083	2.986	0.003**	Supported

Note: X2=225.779, df=120, X2/df= 1.881, RMSEA=.057, RMR=.046, GFI=.918, CFI=.959, SRMR=.0499. ***<.05, **<.01, *<.001

Source: Authors

Model Fitness: Our model has strong fit statistics (X2 = 225.779, df = 120, and X2/df ratio of 1.881). The RMSEA is 0.057; the RMR is 0.046; the GFI is 0.918; the CFI is 0.959; and the SRMR is 0.0499. These results show the model's strong fit to the data and ability to represent the observed covariance matrix. Pathway analysis results indicate that quality (β= 0.353, P<0.05), delivery speed (β= 0.234, P<0.05), customer service (β= 0.254, P<0.05), and social comparison (β= 0.247, P<0.05) all have positive and significant relationships with customer satisfaction. Price has a negative and statistically insignificant correlation with customer satisfaction (β = -0.052, P<0.05).

These findings support hypotheses **H2**, **H3**, **H4**, and **H4**, demonstrating that quality, delivery speed, customer service, and social comparison all have a substantial role in consumer satisfaction. However, we reject **H1** since it not only lacks statistically significant characteristics but also shows a negative association that contradicts our hypothesized direction.

6. DISCUSSION

The study's findings provide useful insights into the intricate nature of customer satisfaction in the cloud kitchen business, complementing previous consumer behavior research (Chinelato et al., 2023; Wang et al., 2023). Notably, the data indicates that great food quality, which meets or exceeds consumer expectations, lessens the impact of price on satisfaction. This goes in tandem with the economic notion wherein quality often beats price against customers' choices (Akmal et al., 2023; Inoni, 2024). In this regard, as a consequence of such a finding, cloud kitchens are bound to zero in on the quality of food through stringent control in terms of the quality of ingredients used and enhancement of superior culinary skills; as such, they can command higher prices and enjoy greater client satisfaction (Auad et al., 2023; Ragaa et al., 2023). Moreover, cloud kitchens have the potential to shift their focus onto consumer satisfaction by offering personalized attention, timely responses to customer queries, or flexibility in ordering. This would influence the general perceived value of the occasion, which, for the consumer, renders the cost less important (S. Ahmed et al., 2023).

Moreover, the research indicated the effect of delivery speed on consumer happiness. To this end, cloud kitchens can improve their deliveries by investing in supply chain management and logistics, and facilitate the ordering process by providing customers with a real-time status of delivery (Ginting et al., 2023). Consequently, this would improve satisfaction and reduce the price visibility which aligns with the findings of (da Cunha et al., 2024; Islam et al., 2021). Additionally, research pinpointed the role of social comparison in determining consumer happiness. Cloud kitchens can build a strong online presence by engaging with their clients through social media, responding in decent time to any feedback provided, and showcasing their culinary expertise. This should minimize customers' dissatisfaction while justifying high prices (Biswas & Verma, 2023; Twum et al., 2023).

This study provides valuable insights into the aspects that drive customer satisfaction in Bangladeshi cloud kitchens. Evidently, the operators gain a competitive advantage over other operators by emphasizing quality and service and customer happiness over cost-cutting strategies in the fast-growing meal delivery sector. Cloud kitchens can differentiate from competitors and enhance customer loyalty by focusing on consumer aspects. This study adds to the literature the key issues relevant to cloud kitchens for maintaining good service and quality. Practical recommendations for the entrepreneurs of cloud kitchens in Bangladesh are investment in employee training, improvement in menu quality, and use of technology for improvement in customer experience. Such strategies will help the cloud kitchen operators to create customer satisfaction, revenue generation, and a competitive market advantage. The results of the research have thus been able to confirm the conceptual framework on which it was based; this involved Comparison Level Theory as well as Evaluative Congruity Theory. Good food that is at par with, or above, the expectations of the customer does have a reducing effect on the price's impact on satisfaction and maintains CLT. Focus on high-quality food, customer satisfaction, personal attention to speed of responses, and flexibility in ordering is what forms the basis of the arguments for ECT on psychological and cognitive coherence and social representations of consumers that create perception and satisfaction, where expectations balance the actual experiences.

7. IMPLICATIONS AND CONCLUSION

7.1 Practical Implications

These findings have important implications for cloud kitchen operators and the food delivery industry at large. Quality, customer service, and speed of delivery are critical areas that cloud kitchen operators should focus on in order to improve customer satisfaction. Core strategies include investment in good products and cooking skills, employee training for good service, delivery route and transport optimization, and caring personally for the customers. With those additions, cloud kitchen operators were able to enhance customer satisfaction which could lead to repeated business and positive word-of-mouth. Additionally, our findings indicate that owners of a cloud kitchen charge more commission whenever they excel in these aspects since their business model is somewhat economical in nature.

Moreover, our study showed that where cloud kitchen owners have succeeded in these branches, they can charge higher commissions due to the economics of their business model. To maintain such a degree of customer satisfaction, it has been advised that cloud kitchen businesses monitor online reviews regularly, keeping themselves updated and responsive; informed decisions should be made based on this data to track patterns and areas of improvement. This includes analyzing consumer data to enhance operations and staying abreast of shifting client tastes and technology enhancements. Not surprisingly, investing in people through training is essential to prepare employees with the skills and knowledge needed to deliver superior customer experience. Cloud kitchens can leverage these techniques to increase customer satisfaction and revenue and develop a competitive advantage within the food delivery space.

Cloud kitchens are intrinsically cost-effective owing to their simplified operational paradigm, which has been proven by these previous studies (Ahmed Khan et al., 2022; Bhattacharjee, 2023; Cankül et al., 2024; Fridayani et al., 2021; Mehnaz et al., 2021; Moyeenudin et al., 2020; Othman et al., 2021; Pookulangara et al., 2023; Rout et al., 2024; Susilowati et al., 2021; Vaughan, 2022; Xu et al., 2024). Most of the overheads can be considerably reduced for cloud kitchens by eliminating dine-in areas and rationalizing cooking with a small staff. These cost benefits allow cloud kitchen operators to reinvest in key areas of food quality, speed of delivery, and customer experience. Cloud kitchens have the liberty to invest in enhancing customer experiences, which consequently leads to higher customer satisfaction and the capability to charge a better price. This way, cloud kitchen operations have much working to their advantage; they are able to offer customers a much better dining experience at lesser costs, hence facilitating cost efficiency and increasing customer satisfaction.

7.2 Conclusion

This study confirms the things that will make a customer satisfied with the cloud kitchen business in Bangladesh. It provides the verification that more concentration on the quality of food, customer service, and delivery time will provide customers with more satisfaction, so a higher cost can be justified. It adds to the extant literature built upon prior customer behavior research in the emerging economy context of the cloud kitchen business. Specifically, it builds on (Ahmed Khan et al., 2022; Akmal et al., 2023; Auad et al., 2023; Bhattacharjee, 2023; Biswas & Verma, 2023; Cepeda-Carrión et al., 2023; Chinelato et al., 2023; Fridayani et al., 2021; Ginting et al., 2023; Hosen, 2023; Moyeenudin et al., 2020; Ragaa et al., 2023; Shahhosseini & Khalili Nasr, 2024; Sharma & Kumar, 2024; Xu et al., 2024) by providing empirical data regarding the impact of meal quality, customer service, and speed of delivery on customer satisfaction. Also, it extends the theoretical mechanisms of CLT and ECT with respect to a proper understanding of the psychological and cognitive motives that influence consumer satisfaction. This can be done by investing in people's training, enhancing the quality of the menu, and using technology towards consumer experiences that are helpful and actionable for the cloud kitchen owners in Bangladesh.

8. LIMITATIONS AND SCOPE OF FUTURE STUDY

8.1 Limitations

First, several limitations of this current study need to be acknowledged. The research coverage in this study is geographical, relating to Bangladesh in general but the city of Dhaka specifically. For this reason, it may not consider regional variations either within Bangladesh or outside it. The results are therefore likely to be biased in view of such limited scope since consumption patterns, social habits, and infrastructures differ significantly among locations. Furthermore, an extended sample size for a wide range of areas and countries would provide vast knowledge in areas relating to elements influencing consumer satisfaction in cloud-based kitchens, particularly when cultural and regional differences are taken into account. Lastly, in relation to consumer satisfaction, this study focuses on certain criteria such as pricing, quality, delivery speed, customer service, and social comparison. This might be influenced by different kinds of characteristics considered, such as menu diversity, nutritional value, or preservation of the environment, in varied contexts and affecting customer pleasure. Several other factors could affect satisfaction that might be part of other studies. The results of this study would specifically come within the context of cloud kitchens, which are essentially delivery-only models of eating places. Further research may take due note of these limitations and try to evaluate consumer happiness in a wide array of situations-cultural, economic, and demographic.

8.2 Scope of Future Study

Future research on this topic is called for with more intensive geographic investigation beyond locations and nations considered in this study, using a mixed methods approach whereby quantitative and qualitative data collection and analysis are combined. How regional differences impact consumer happiness in cloud kitchens, therefore, remains to a great extent unexplored, and a longitudinal study might come up with rich insights into changes in customer satisfaction over time among different countries. For instance, the expansion in the number of criteria influencing happiness can be increased to consider other variables that might lead to a more comprehensive understanding of the field, like menu engineering, security of food, and sustainability.

It's plausible that investigation of these could be done via polls, interviews, and case investigations. The investigation of customer satisfaction regarding the various food services models, such as the dine-in restaurant, food truck, and food kit delivery services, would provide deeper insights into this very dynamic industry. Multi-regional studies could also consider the role of cultural and economic drivers of consumer satisfaction in various contexts, using statistical analysis and data modeling to identify patterns and trends. Other future research can also adopt an experimental approach by, for example, using A/B testing, testing other factors that influence consumer satisfaction about the cloud kitchens: cost and quality.

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