The Impact of Product Quality on Customer Satisfaction and Loyalty

Abdilrahman Ebrahim[1], Anees Alhudiri[2], Abdelaziz Elanizi[3], Alzobier Eltaiash[4]

[1,3,4]Human and Social Sciences, Marketing Program, Libyan International University, Benghazi, Libya
[2]Faculty of Public Health, Health Services Administration Department, University of Benghazi, Benghazi, Libya

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ABSTRACT

This paper examines the effect of product quality on customer satisfaction and loyalty, focusing on El-Rayhan Food Industries Company. In today's competitive marketplace, consumer brand loyalty is crucial for companies aiming to maintain a competitive advantage. The study confirms that high-quality products enhance positive customer experiences, leading to repeat purchases and long-term loyalty. It explores how product quality, customer satisfaction, and brand loyalty interrelate and interact with business performance. The study is based on a quantitative approach, using simple and multiple linear regression analysis to evaluate the effect of product quality on customer satisfaction and loyalty. The data was collected through surveys providing insights into the customer's perception of product quality and its impact on their loyalty. Based on this, the results reveal that product quality significantly affects customer satisfaction and loyalty. In this way, high-quality products enhance the customer's satisfaction, which leads to increased customer loyalty and recommendations. The study also identifies mediating factors such as customer satisfaction that show there is a positive effect of product quality on brand loyalty through customer satisfaction as a mediator variable.

Keywords: Product quality, Customer satisfaction, Customer loyalty, El-Rayhan Company.

INTRODUCTION

In the competitive environment of modern markets, Understanding the factors that influence consumer brand loyalty is essential for companies looking to maintain their competitive advantage. The quality of the product is a strong key element affecting loyalty. Positive customer experiences are typically fostered by high-quality items, which encourage repeat business and enduring loyalty. Customers are more likely to form a strong, long-lasting preference for a brand and become more loyal when they believe that the product is of high quality (1). This impression is frequently based on several characteristics that together increase customer satisfaction, such as performance, durability, and dependability (2). The market is filled with a huge number of products. Customers occasionally struggle to decide which one to purchase due to the products are so similar. The product's quality, the store's ability to market it, and the influence of other customers are what encourage them to purchase a product. These are the main factors that influence consumers' decisions to purchase a product; ultimately, it is up to the consumers to make that decision (3).

In light of the effect of globalization, technological advancements, the influx of new competitors into the market, the emergence of new products, challenges from rivalry, declines in market shares, and lower repurchase intentions, which result in a reduction in sales volume for the organization, businesses today must prioritize issues related to product quality, customer satisfaction, and repurchase intentions. These elements ultimately lead to customer loyalty, which is vital to the survival of the business in general (4).

Additionally, a high-quality product improves the reputation of the business generally in addition to directly affecting consumer pleasure. A solid reputation for quality can have a halo effect, increasing the likelihood that customers would choose the brand going forward and refer others to it (5).

As a result, buyers become more devoted to the brand over time and are more ready to overlook little imperfections. This increases consumer loyalty. The correlation between product quality and brand loyalty is crucial for organizations that aim to establish and nurture a devoted consumer base against heightened competition in the market. Examining this relationship offers insightful information about how companies can strategically concentrate on product quality to increase customer loyalty and promote long-term profitability.

Customer loyalty can arise from a customer's commitment to a brand, store, or supplier demonstrated through a positive attitude and a pattern of repeat purchases.

El-Rayhan Company for Food Industry is a prominent player in the food sector, it serves as an excellent example of how focusing on product quality can drive customer loyalty and businesses to success. Known for its commitment to delivering high-quality food products, El-Rayhan has established a strong reputation in the market. This study examines the relationship between product quality and customer brand loyalty, using El-Rayhan as a case study to provide practical insights and recommendations.

OPERATIONAL DEFINITIONS

Product Quality: According to Kotler et al., (2016) "Product quality is the characteristic of a product or service that bears on its ability to satisfy stated or implied customer needs." "Appropriateness in using a product is if the product has long durability of use, the product used will improve the image or status of consumers who use it, the product is not easily damaged, there is quality assurance and is ethical if used" (6).

Customer Loyalty: According to Oliver (2014) Customer loyalty is "a deeply held commitment to rebuy or re-patronize a preferred product/service consistently in the future, thereby causing repetitive same-brand or same brand-set purchasing, despite situational influences and marketing efforts having the potential to cause switching behaviour" (7).

Customer Satisfaction: Oliver (2014) defines customer satisfaction (CS) as "a judgment that a product/service feature or the product or service itself provided (or is providing) a pleasurable level of consumption-related fulfilment, including levels of under- or over-fulfilment." Similarly, Anderson and Carol and Sullivan (1993) characterize CS as a "post-purchase evaluation of product quality given repurchase expectations" (8).

Research Problem: By looking into the effect of product quality on customer satisfaction and loyalty, the research seeks to provide El-Rayhan with useful information on how improving product quality and customer satisfaction may increase brand loyalty and eventually result in sustained business success. The research aims to explicitly investigate the following questions: **1)** How does consumer brand loyalty in various product categories in El-Rayhan relate to perceived product quality?; and **2)** What are the main variables that operate as mediators in the effect of product quality on brand loyalty at El-Rayhan Company?

Objectives of the Study: This paper aims to investigate the effect of product quality on customer brand loyalty in the food industry, using the El-Rayhan Company for the Food Industry as a case study. Specific objectives include: **1)** To analyze customers' perception toward the product quality of El-Rayhan Company; **2)** To identify the impact of product quality on brand loyalty; **3)** To examine the impact of customer satisfaction on brand loyalty; and **4)** To provide recommendations for El-Rayhan on enhancing product quality and customer loyalty.

By fulfilling these objectives, the study aims to improve our understanding of consumer behaviour and marketing while providing useful advice for El-Rayhan Company to use product quality as a major factor in fostering customer satisfaction and brand loyalty.

Study Hypothesis: The following hypotheses were developed for the current research;

H0a: Product quality does not have a significant direct effect on brand loyalty.

H1a: Product quality has a significant direct effect on brand loyalty.

H0b: Product quality does not have a significant effect on customer satisfaction.

H1b: Product quality has a significant effect on customer satisfaction.

H0c: The indirect effect of product quality on brand loyalty through customer satisfaction is not statistically significant, indicating no partial mediation.

H1c: The indirect effect of product quality on brand loyalty through customer satisfaction is statistically significant, indicating partial mediation.

Research Importance: The scientific significance of this study is in the examination of the effect of product quality on customer satisfaction and loyalty of El-Rayhan customers, a major concern for most businesses, organizations, and brands due to the intense competition in the marketplace. Examining the topic of brand loyalty, along with its influential variables and its connection to consumer behaviour and interpretation, is a highly valuable contribution to both the marketing and psychology fields. The subject is highly relevant and currently being studied in scientific research due to its potential to enhance our understanding of customer behaviour, clarify ambiguities, and guide

strategies for product success and revenue growth. The suggested model represents a good combination of product quality, customer satisfaction, and brand loyalty. The issue holds practical and applied significance due to upcoming results, which will help offer a more distinct understanding of the relationship between factors of customer behaviour for the El-Rayhan organization.

THEORETICAL FRAMWORK

Product Quality: In the food industry, product quality is extremely important because it directly impacts consumer health and satisfaction. Consumers are becoming increasingly concerned about the quality of the food they consume, which includes not only the sensory and nutritional aspects but also the ethical and environmental implications of food production (9). Therefore, food companies must prioritize quality to meet consumer needs and remain competitive.

Product quality can be defined as a measure of how well a product performs its intended functions, meets customer expectations, and provides satisfaction (2). According to Kotler et al., (2016), "Quality is the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs" (6). Juran (1988) defined it as "Quality is fitness for use. It is not enough that a product meets the specifications; it must also meet the customer's needs" (10).

Customer Satisfaction: It is the consumer's response to their fulfilment. It is the judgment that a product or service, or its features, provides a pleasurable level of consumption-related fulfilment (7). According to Kotler et al., (2016), customer satisfaction is the feeling of pleasure or disappointment resulting from comparing a product's perceived performance or outcome with one's expectations. Essentially, if the product meets or exceeds expectations, the customer is likely to be highly satisfied. On the other hand, if the actual performance falls short of expectations, the customer is likely to be dissatisfied. Furthermore, Zeithaml et al., (2018) define customer satisfaction as the customer's evaluation of a product or service in terms of whether it has met their needs and expectations (5)..

Brand Loyalty: Customer brand loyalty refers to a customer's consistent preference for a particular brand over others, demonstrated through repeated purchases and positive word-of-mouth (7). Brand loyalty is influenced by various factors, including customer satisfaction, perceived value, brand trust, and emotional attachment (1).

Oliver (2014) described brand loyalty as developing through a cognitive-affective-conative-behavioural sequence. Initially, customers form cognitive loyalty based on brand-related information and experiences. This evolves into affective loyalty as customers develop positive emotions towards the brand. Conative loyalty is characterized by a strong commitment to repurchase, and behavioural loyalty is the actual repeat purchasing behaviour. Chaudhuri and Holbrook (2001) highlighted the roles of brand trust and brand effect in fostering loyalty, noting that trust reduces perceived risk and enhances emotional connections with the brand.

Loyal customers are more likely to make repeat purchases, recommend the brand to others, and be less sensitive to price changes (11).

Kotler et al., (2016) defined it as "Customer loyalty a deeply held commitment to rebuy or patronize a preferred product or service consistently in the future, despite situational influences and marketing efforts having the potential to cause switching behaviour." "Loyalty is the strength of the relationship between an individual's relative attitude and repeat patronage" (11).

Reflection: Building and maintaining customer loyalty is an essential objective for businesses across several industries. Gaining insight into the variables that impact customer satisfaction, an important driver for fostering loyalty is crucial for achieving success. This analysis investigates multiple studies that examine the relationship between customer satisfaction and loyalty across different industries.

The papers examined adopted various kinds of methods for gathering data. Some primarily depended on surveys and questionnaires, employing quantitative methods to collect statistical data. Some researchers employed a combination of qualitative and quantitative methods, including conducting interviews or employing path analysis. This combined approach provides a more thorough comprehension of the complex relationship between customer satisfaction and loyalty.

Businesses have consistently prioritized product quality as an important differentiator. The study examined in this context emphasizes the lasting nature of this principle. Studies conducted across several industries constantly indicate that the presence of high-quality products is essential for building customer trust and satisfaction. Customers are more likely to experience satisfaction and develop loyalty towards organizations that provide products that meet or exceed their expectations.

An important finding from the reviewed studies is the strong and meaningful correlation between customer satisfaction and customer loyalty. Customer satisfaction with product quality increases the likelihood of repeat purchases and fosters brand loyalty. This emphasizes the significance of exceeding customer expectations to develop a loyal base.

The reviewed studies present a persuasive argument for placing product quality as a fundamental foundation for establishing customer satisfaction and loyalty. By prioritizing the delivery of superior products that regularly exceed or meet consumer expectations, organizations may establish trust, create positive customer experiences, and ultimately achieve long-lasting success.

The literature consistently supports the notion that product quality is a crucial determinant of customer brand loyalty. High product quality leads to increased customer satisfaction, which in turn fosters brand loyalty. El-Rayhan Company for Food Industry exemplifies this relationship through its commitment to quality and customer-centric strategies. By maintaining and enhancing product quality, El-Rayhan can strengthen its market position and achieve long-term success.

Company Overview: In 1989, El-Rayhan Company began its journey as a Libyan company aiming to provide top-quality food products with international standards. It started by offering a variety of halwa and later expanded into producing natural juices in 2001 with sizes of 250 ml and 1000 ml. From 2003 to 2005, the company increased its production capacity and added more production lines to its operations.

El-Rayhan's main goal has always been to meet the needs of the Libyan, Arab, and international markets. In 2007, El-Rayhan Food Industries Company established a new factory focusing on producing high-quality dairy products and juices to compete internationally. Three years later, the company further expanded its production capacity and added 3 "High Speed" production lines.

Continuing its achievements, the company entered into contracts in 2019 with major Italian, Tunisian, and Indonesian companies to supply the finest cheeses, pasta, tomato paste, tuna, and cooking oil at competitive prices. Despite the global economic recession and challenging epidemic crisis in 2020, the company increased its production capacity by 120% across all sizes and introduced a new 125 ml size.

El-Rayhan Company remains committed to its ongoing development, contributing to the Libyan economy, and ensuring customer satisfaction.

LITERATURE REVIEWS

Impact of Product Quality on Customer Satisfaction and Loyalty (Sambo et al., 2022) (12).
The main goal of the study was to assess the impact of product quality on customer satisfaction and loyalty. The study used a survey research design and included 264 employees of Adama Beverages Ltd. The collected data were analyzed using linear regression analysis, with the entire population being used as the sample size. The questionnaire was modified to gather information from the respondents. The study's findings revealed that product quality significantly influences customer satisfaction and loyalty. It was suggested that fluctuations in both the firm's product quality and the customers' satisfaction with the product quality could result in a decrease in customer loyalty. The study recommends that management establish a system of interactive metrics to monitor product quality based on customer perceptions, as this has a direct impact on customer satisfaction and loyalty.

The Effects of Service Quality and Product Quality on Customer Satisfaction and Loyalty in the Restaurant Industry (Mahsyar and Surapati, 2020) (13).
The rapid growth of the food industry in Indonesia has led to increased competition among restaurants. To survive and succeed in this highly competitive environment, restaurants must focus on providing top-notch service and high-quality products to enhance customer satisfaction and build loyalty. A study aimed to investigate the impact of service quality and product quality on customer satisfaction and loyalty in the restaurant industry, as well as identify key factors influencing restaurants. The researchers collected data through a questionnaire sent to 50 customers of restaurants in Samarinda. The collected data was analyzed using path analysis, bootstrapping, and the PLS algorithm in the SmartPLS application, version 3. The study found that service quality does not significantly impact customer satisfaction, while product quality has a strong influence on it. Moreover, customer satisfaction itself has a significant effect on consumer loyalty.

The Effect of Price and Product Quality Towards Customer Satisfaction and Customer Loyalty on Madura Batik (Wantara and Tambrin, 2019) (14).
The objective of the study was to analyze and explain the impact of pricing and product quality on satisfaction and loyalty. The study was carried out in the Bangkalan region. The research problem of this study revolves around investigating the potential influence of price and product quality on customer satisfaction, as well as the influence of

price and product quality on customer loyalty. Additionally, the study aims to determine whether there is any influence of customer satisfaction on customer loyalty. This study employed a survey methodology in which participants were interviewed and requested to complete a questionnaire using a five-point Likert scale. The study focuses on customers who have made more than two purchases of Madura Batik. The study's sample size consisted of 200 respondents, and the sampling methodology employed was the purposive sampling approach. The research uses SEM analysis as its analytical method. Based on the findings of the analysis, it can be inferred that price has a significant and positive influence on customer satisfaction. Additionally, product quality also has a significant and positive impact on customer satisfaction. Furthermore, price has a significant and positive effect on customer loyalty, and customer satisfaction has a significant and positive impact on customer loyalty. However, it was found that product quality does not have a significant and positive impact on loyalty.

The Effects of Product Quality on Customer Satisfaction and Loyalty: Evidence from Malaysian Engineering Sector (Hoe and Mansori, 2018) (15).

In today's rapidly evolving and complex business environment, companies prioritize customer satisfaction to improve their overall performance. Customer satisfaction is crucial for a business to survive, thrive, and remain competitive. It is also a key factor in building customer loyalty, which is essential for long-term success. Loyal customers not only add value to a business but also help reduce the cost of acquiring new customers. To foster customer loyalty, organizations focus on building and maintaining strong, mutually beneficial relationships with their customers. This research aims to identify the characteristics that can give a company a sustainable competitive advantage by improving customer satisfaction and ultimately cultivating customer loyalty. The proposed model includes various elements of product quality as independent variables, along with customer satisfaction. According to Garvin's eight dimensions of product quality—performance, features, reliability, conformance, durability, serviceability, aesthetics, and perceived quality—these aspects directly influence customer satisfaction, which in turn affects customer loyalty. The research findings provide valuable insights into how product quality factors impact customer satisfaction and, in turn, customer loyalty in the engineering sector in Malaysia.

A Research Proposal: The Relationship between Customer Satisfaction and Consumer Loyalty (Daikh, 2015) (16).

In 2015, Daikh conducted research on the relationship between customer satisfaction and consumer loyalty. The study covered various market sectors, including products and services, with a specific focus on financial institutions.

A preliminary sample of data (N = 80) will be collected from faculties and students at Johnson and Wales University, encompassing individuals of all ethnicities and nationalities, including both domestic and international students.

The study's hypothesis is as follows: H1: There is a statistically significant positive correlation between customer loyalty and customer satisfaction, which is addressed using a t-test for independent samples. The study's discussion revealed a significant positive relationship between customer loyalty and customer satisfaction. However, it is crucial to understand that achieving customer loyalty, which is the primary objective of every industry, is exceedingly challenging and not readily achievable. The difficulty arises from the task of achieving customer satisfaction and maintaining high service quality. Furthermore, several other factors can influence consumer loyalty, including intense competition among companies and rapid technological advancements.

These arguments suggest that corporations should make an effort, as loyalty is a transient matter; a consumer who is loyal today may not be loyal tomorrow. This study aimed to establish the correlation between customer satisfaction and customer loyalty and to investigate the influence of customer satisfaction on customer loyalty.

METHODOLOGY

The study employs a quantitative research design, focusing on a case study of El-Rayhan for the Food Industry. The objective is to examine the effect of product quality on customer satisfaction and loyalty among El-Rayhan customers. A quantitative approach is chosen to allow for statistical analysis and generalization of findings.

The population for this study consists of customers of El-Rayhan for the Food Industry. A simple random sampling technique was employed to ensure that every member of the population had an equal chance of being included in the sample. The sample size was determined using the Krejcie and Morgan's table, which provides a statistically valid method for determining sample sizes for research studies based on the population size. On the other hand, the number of respondents received was 291 out of 384 (17).

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	346
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	354
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	191	1200	291	6000	361
45	40	170	118	400	196	1300	297	7000	364
50	44	180	123	420	201	1400	302	8000	367
55	48	190	127	440	205	1500	306	9000	368
60	52	200	132	460	210	1600	310	10000	370
65	56	210	136	480	214	1700	313	15000	375
70	59	220	140	500	217	1800	317	20000	377
75	63	230	144	550	226	1900	320	30000	379
80	66	240	148	600	234	2000	322	40000	380
85	70	250	152	650	242	2200	327	50000	381
90	73	260	155	700	248	2400	331	75000	382
95	76	270	159	750	254	2600	335	1000000	384

Figure 1: Table of Determining Sample Size (S), where N is a Population Size (Krejcie and Morgan, 1970).

The study collected both secondary and primary data. Secondary data included previous research studies on the effect of product quality on customer satisfaction and loyalty. These sources provided a theoretical foundation and context for the study.

As indicated in Fig.1, when the population exceeds one million, the sample size should be 384 to achieve a confidence level of 95% and a margin of error of 5%. The questionnaire was distributed through various social media platforms to reach a wide audience of El-Rayhan customers. Out of the 384 questionnaires distributed, 291 responses were received, resulting in a response rate of approximately 75.8%.

The research began with the distribution of online questionnaire through uploading and sending it in multiple social media platforms. The questionnaire contained closed-ended questions in which respondents were presented on a 3-point Likert scale.

Table 1: Likert's Measurement Scale

Direction	Disagree	Neutral	Agree
Class	1-1.66	1.67-2.33	2.34-3

Data Collection Tool: The questionnaire used for this study was designed to collect comprehensive data on the effect of product quality on customer satisfaction and loyalty among El-Rayhan Food Industry customers. Primary data was collected through a structured questionnaire designed to gather information on customer perceptions of product quality, satisfaction, and loyalty. The questionnaire was sourced from the study by Sambo et al., (2022), which provided a validated instrument to measure these variables. The questionnaire was distributed through various social media platforms to reach a wide audience of El-Rayhan customers. The questionnaire was divided into three main sections, in addition to a demographic section at the beginning. The sections focus on assessing respondents' perceptions of El-Rayhan product quality, customer satisfaction, and brand loyalty.

The questionnaire consisted of 34 questions in total, including demographic questions and 10 questions for each variable. We rated each question on a 3-point Likert scale, providing options for agree, neutral and disagree, as

shown in Figure 2 above. The questionnaire was originally distributed in the Arabic language to ensure clarity and ease of understanding for the participants.

Population and Sample: The study population consists of El-Rayhan's food industry customers. To ensure representativeness, a sample size of 384 was determined using the Krejcie and Morgan's table. A simple random sampling technique was used, resulting in a 75.8% response rate from 291 distributed questionnaires through various social media platforms.

Case Study: The study utilizes a case study approach, specifically focusing on El-Rayhan for the Food Industry, to investigate the effect of product quality on customer satisfaction and loyalty. The case study approach is very appropriate for this topic since it allows for a thorough and detailed exploration of this topic within their real-life settings. By focusing on El-Rayhan, the study may thoroughly explore certain firm practices, product quality concerns, and consumer perspectives. El-Rayhan was selected due to its leading position in the food industry and its commitment to producing high-quality goods. These factors make it a great option for studying the dynamics of customer satisfaction and loyalty. The findings derived from this case study may provide significant actionable suggestions for comparable organizations in the food sector seeking to improve product quality and establish enhanced customer relationships.

RESULTS

The data analysis was performed using the software package SPSS version 25. To examine the data from this study, various tests were employed, such as the reliability test, Cronbach alpha, and frequencies to assess differences in participants based on their demographic data, Kolmogorov-Smirnova, Shapiro-Wilk test, and Spearman's rho.

Initially, a frequency test was conducted to assess the demographic dimension. Additionally, the reliability of the graduating project was assessed using Cronbach alpha. Moreover, a normality test was conducted to verify the distribution of data among participants. The results revealed that the data was not distributed according to a normal distribution. Consequently, the findings of this study were analyzed using the non-parametric Simple and Multiple Linear Regression analysis.

Instrument Reliability: Although the questionnaire was adopted from a validated source, it was necessary to confirm its reliability within the context of this study. Internal consistency was evaluated using Cronbach's alpha, with all sections of the questionnaire demonstrating coefficients above 0.70, indicating high acceptable reliability. Alpha Cronbach value of 0.921, 0.883, and 0.938 was obtained for product quality, customer satisfaction, and brand loyalty respectively. The reliability value for each variable exceeded the recommended level of 0.70 (18). The values demonstrate great reliability, and the data collection instrument used in this study regularly measures its intended variables.

Table 2: Reliability Test

	Reliability Statistics	
Factor	Cronbach's Alpha	N of Items
Product Quality	0.921	10
Customer Satisfaction	0.883	10
Brand Loyalty	0.938	10
Total	**.969**	**30**

Based on the high-reliability values presented in Table 2, we may trust the questionnaire results to effectively fulfil the main purpose of this study - to investigate the impact of product quality on the satisfaction and loyalty of El-Rayhan consumers.

Demographic Information Analysis: This initial section gathered essential demographic information about the respondents, including gender, age, income, and education level. This data helped to contextualize the responses and ensure a diverse sample representation.

Table 3: Gender of Respondents

Gender	Frequency	Percent
Male	187	64.3
Female	104	35.7
Total	**291**	**100**

Through our study, we observed that the sample comprised 187 males, 64.3%, and 104 females, constituting 35.7%.

Table 4: Age of Respondents

Age (Years)	Frequency	Percent
Under 18	20	6.9
18-28	141	48.5
29-39	50	17.2
40-50	76	26.1
51-61	4	1.4
Total	**291**	**100**

Table 3 shows that 6.9% of participants were under 18, 48.5% were in the 18–28 age group, 17.2% were in the 29–39 age group, and 26.1 were in the 40–50 age group. Furthermore, only 1.4% of the participants were in the 51–61 age group.

Table 5: Income Level of Respondents

Income	Frequency	Percent
Without	34	11.7
Weak	19	6.5
Middle	157	54
Excellent	81	27.8
Total	**291**	**100**

Table 5 illustrates the distribution of participants based on their income levels. The data reveals that 11.7% of the participants reported having no income, while 6.5% had a low income. Additionally, 54.0% of the respondents were classified as having a middle income, while 27.8% were deemed to have an excellent income.

Table 6: Educational Level of Respondents

Educational	Frequency	Percent
High Diploma	78	26.8
Bachelor	139	47.8
Master	56	54
Doctorate	18	27.8
Total	**291**	**100**

Table 5 presents the breakdown of education levels: 26.8% with a high school diploma, 47.8% with a bachelor's degree, 19.2% with a master's degree, and 6.2% with a doctorate.

Normality Test: A normality test is employed to determine the distribution of the data in the study. The Kolmogorov-Smirnov Shapiro-Wilk tests were employed to assess the normality of the data. For specific scenarios, this normality test is the most effective.

Table 7: Test of Normality

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	d.f	Sig.	Statistic	d.f	Sig.
Customer Satisfaction	0.235	291	0.000	0.761	291	0.000
Brand loyalty	0.262	291	0.000	0.685	291	0.000

The normality test revealed that all variables exhibited statistical significance at an amount below 0.05, indicating that the data may be normally distributed according to the Kolmogorov-Smirnov and Shapiro-Walk tests. Moreover, the statistical findings of this study adhere to non-parametric approaches.

Descriptive Statistics: As per SimpliLearn (2021), descriptive statistics encompasses a range of techniques utilized to summarize and describe key characteristics of a dataset, including its central tendency, variability, and distribution. These techniques offer insight into the data and aid in identifying patterns and relationships (19).

Table 8: Customer's Perception Towards Product Quality of El-Rayhan

Statement		Disagree	Neutral	Agree	Mean	S.D	Direction	R.I	Rank
Are El-Rayhan products of excellent quality.	N	25	26	240	2.74	0.605	Agree	91%	2
	%	8.6	8.9	82.5					
The packaging is very reasonable and rich in information about the product.	N	19	28	244	2.77	0.554	Agree	92%	1
	%	6.5	9.6	83.8					
The products have a very rich taste.	N	41	14	236	2.67	0.710	Agree	89%	3
	%	14.1	4.8	81.1					
The product is highly nutritional.	N	40	59	192	2.52	0.725	Agree	84%	9
	%	13.7	20.3	66					
El-Rayhan products stand out compared to other alternatives.	N	37	38	216	2.61	0.702	Agree	87%	7
	%	12.7	13.1	74.2					
I highly recommend it to my friends and colleagues.	N	36	29	226	2.65	0.689	Agree	88%	5
	%	12.4	10.0	77.7					
The product quality is exceptional.	N	35	25	231	2.67	0.679	Agree	89%	4
	%	12.0	8.6	79.4					
The probability of me shifting to another brand is close to zero.	N	49	89	153	2.35	0.753	Agree	78%	10
	%	16.8	30.6	52.6					
Continuous innovation and rich add-ons actually matched my improvement expectations.	N	36	63	192	2.53	0.705	Agree	84%	8
	%	12.4	21.6	66.0					
The continuous additions to the product have made me satisfied with the brand.	N	36	38	217	2.62	0.695	Agree	87%	6
	%	12.4	13.1	74.6					
Total					2.61	0.522		86%	

Table 8 shows the responses provided by the participants regarding the product quality of El-Rayhan. The participants agreed to all items from number 1 to 10. The item with the highest Relative Importance (RI) is "The packaging is very reasonable and rich in information about the product," with 92% RI and a mean score of 2.77.

This indicates that participants highly value the informative packaging of El-Rayhan products. The least positive RI item is "The probability of me shifting to another brand is close to zero," with 78% RI and a mean score of 2.35. Despite being positive, this item has the least relative importance regarding product quality.

Overall, the total mean score is 2.61 with an overall RI of 86%, indicating that customers generally perceive El-Rayhan products as being of high-quality.

Table 9: Levels of Customer Satisfaction with El-Rayhan Products

Statement		Disagree	Neutral	Agree	Mean	S.D	Direction	R.I	Rank
I have made repeated purchases of El-Rayhan products several times.	N	17	6	268	2.86	0.486	Agree	95%	1
	%	5.8	2.1	92.1					
I have increased intake of this product due to its incomparable taste and flavour.	N	38	12	241	2.69	0.688	Agree	89%	3
	%	13.1	4.1	82.8					
I have recommended El-Rayhan products to several people.	N	45	20	226	2.62	0.739	Agree	87%	5
	%	15.5	6.9	77.7					
I believe this product deserves my loyalty.	N	45	28	218	2.59	0.743	Agree	86%	6
	%	15.5	9.6	74.9					
Over the past year, my loyalty to El-Rayhan has become stronger.	N	46	38	207	2.55	0.751	Agree	85%	10
	%	15.8	13.1	71.1					
El-Rayhan values people, customer health, and nutritional needs more than focusing on short-term goals (profits).	N	29	66	196	2.57	0.667	Agree	85%	9
	%	10.0	22.7	67.4					
I have been a customer of El-Rayhan for more than 3 years and still am.	N	45	30	216	2.58	0.744	Agree	86%	7
	%	15.5	10.3	74.2					
My chance of repurchasing any El-Rayhan offers is excellent.	N	22	34	235	2.73	0.590	Agree	91%	2
	%	7.6	11.7	80.8					
I am always encouraged to repurchase El-Rayhan products, which I consider a leader and an example in the local food industries.	N	34	22	235	2.69	0.670	Agree	89%	4
	%	11.7	7.6	80.8					
I am very satisfied with El-Rayhan products and do not look for alternatives.	N	46	31	214	2.57	0.749	Agree	85%	8
	%	15.8	10.7	73.5					
Total					2.65	0.551		87%	

Table 9 shows the responses provided by the participants about the items in the customer satisfaction section of the questionnaire. The participants completely agreed to all items from 1 to 10. According to the results, the item with the highest Relative Importance (RI) is "The product 'quantity wise' is commendable," with 93% RI and a mean score of 2.79. This indicates that the participants are extremely satisfied with the quantity of El-Rayhan products. On the other hand, the item with the lowest RI is "In terms of health and nutrition, the product is excellent," which has a relative importance rate of 83% and a mean score of 2.49. While it remains positive, this specific aspect holds the least significant relative importance when it comes to customer satisfaction. Overall, the mean score is 2.64 and the overall RI is 87.6%. This suggests that El-Rayhan consumers are generally satisfied with the products and strongly agree on the most positive aspects of their experience.

Table 10: Brand loyalty among El-Rayhan Customers

Statement		Disagree	Neutral	Agree	Mean	S.D	Direction	R.I	Rank
The product's taste is very good, and it has led me to repeat purchases.	N	26	15	250	2.77	0.597	Agree	92%	2
	%	8.6	5.2	85.9					
I agree that the product's price is excellent for its quality.	N	44	20	227	2.62	0.733	Agree	87%	8
	%	15.1	6.9	78.0					
The distribution is very wide and no scarcity exists, meeting up with my demands at all times.	N	27	28	236	2.71	0.623	Agree	90%	4
	%	9.3	9.6	81.1					
I testify to the nutritional superiority of this product.	N	35	32	224	2.64	0.685	Agree	88%	7
	%	12.0	11.0	77.0					
The product "quantity wise" is commendable.	N	17	27	247	2.79	0.532	Agree	93%	1
	%	5.8	9.3	84.9					
The product meets my expectations at all dimensions.	N	50	36	205	2.53	0.771	Agree	84%	5
	%	17.2	12.4	70.4					
My demand has increased despite reduction in El-Rayhan promotion and advertisement.	N	48	29	214	2.57	0.759	Agree	85%	9
	%	16.5	10.0	73.5					
In terms of health and nutrition, the product is excellent.	N	42	63	186	2.49	0.735	Agree	83%	10
	%	14.4	21.6	63.9					
The product packaging is always perfect.	N	30	21	240	2.72	0.639	Agree	90%	3
	%	10.3	7.2	82.5					
When it comes to solutions provided by this product, I always ask for this brand first (only the absence of some El-Rayhan products drives me to buy from other alternatives).	N	47	43	201	2.52	0.757	Agree	84%	6
	%	16.2	14.8	69.1					
Total					2.64	0.479		87.6%	

Table 10 shows the responses provided by the participants about the items in the brand loyalty section of the questionnaire. The participants completely agreed to all items from number 1 to 10. The table shows that the greatest Relative Importance (RI) item is "I have made repeated purchases of El-Rayhan products several times," with 95% of respondents agreeing and a mean score of 2.86. This indicates that individuals exhibit robust brand loyalty by making recurrent purchases.

On the other hand, with 85% RI and a mean score of 2.55, the least positive RI item is "Over the past year, my loyalty to El-Rayhan has become stronger." While the item has a positive rating, it holds the least relative importance regarding brand loyalty. The total mean score is 2.65 with an overall RI of 87%, indicating that El-Rayhan customers generally show strong brand loyalty, with high levels of agreement on most positive statements regarding their loyalty to the brand.

Regression Analysis: According to Creswell and Creswell (2017), "Regression analysis is a statistical technique for estimating the relationships among variables" (20). It is particularly useful for identifying the strength and character of the relationships, providing a means for estimating the effect of changing one variable on another.

In Table 11 below, we have employed simple linear regression for Model-1 which examines the direct effect of product quality on brand loyalty, as well as Model-2 which examines the direct effect of product quality on customer satisfaction. Finally, for Model-3 we utilized Multiple Linear Regression to measure the effect of product quality on brand loyalty via customer satisfaction.

Table 11: Model Summary

Models	Coefficients	P-value (Sig)
Model-1	0.942	<0.01
Model-2	0.813	<0.01
Model-3	0.526	<0.01
	0.512	

Model 1: This model examines the effect of product quality (an independent variable) on brand loyalty (a dependent variable). The Beta coefficient is 0.942, with a P-value less than 0.01. This high coefficient value indicates a very strong positive relationship between product quality and brand loyalty, meaning that as product quality increases, brand loyalty also significantly increases.

Model 2: This model examines the effect of product quality (an independent variable) on customer satisfaction (a dependent variable). The Beta coefficient value is 0.813, with a P-value less than 0.01. This high coefficient value indicates a very strong positive relationship between product quality and customer satisfaction, meaning that as product quality increases, customer satisfaction also significantly increases.

Model 3: This model evaluated the combined effect of product quality (independent variable) and customer satisfaction (a mediator variable) on brand loyalty (a dependent variable). The beta coefficients are 0.526 and 0.512 for product quality and customer satisfaction, respectively.

Both with P-values less than 0.01. These values suggest that both product quality and customer satisfaction significantly contribute to brand loyalty. The coefficient value of 0.526 indicates that product quality has a moderate positive effect on brand loyalty when considering customer satisfaction as a mediator. Similarly, the coefficient value of 0.512 shows that customer satisfaction also has a partially positive effect on brand loyalty. Then, the mediator variable (Customer satisfaction) partially mediates the relationship between product quality (an independent variable) and brand loyalty (a dependent variable).

Hypothesis Testing: Based on the results of Model 1 above and since the significance level is <0.05, it leads to rejecting the null hypothesis H0a: "Product quality has no significant effect on brand loyalty" and accepting the alternative hypothesis H1a: "Product quality has a significant effect on brand loyalty."

Furthermore, in Model 2, the significance value is < 0.05, which leads to rejecting the null hypothesis H0b: "Product quality has no significant effect on customer satisfaction" and accepting the alternative hypothesis H1b: "Product quality has a significant effect on customer satisfaction."

Finally, the significance level is < 0.05 for Model 3, which will lead to rejecting the null hypothesis H0c: "The indirect effect of product quality on brand loyalty through customer satisfaction is not statistically significant, indicating no partial mediation." and accepting the alternative hypothesis H1c: "The indirect effect of product quality on brand loyalty through customer satisfaction is statistically significant, indicating partial mediation."

DISCUSSION

The study aimed to examine the effect of product quality on customer satisfaction and brand loyalty among customers of El-Rayhan for the Food Industry.

The findings showed that 64% of the respondents were males, 48.5% were 18 to 28 years old, 54% were of middle-income level, and 47.8% were holding bachelor's degrees. Moreover, the results indicated a significant and positive relationship between the quality of the product and loyalty towards the brand. Regression analysis (Model-1) revealed a significant positive relationship (Beta = 0.942, p < 0.01), suggesting that an improvement in product quality leads to an increase in brand loyalty (Table 11). This finding aligns with the theoretical perspectives presented by Chaudhuri and Holbrook (2001), which claim that high-quality products develop trust and connections that are essential components of brand loyalty.

However, it is important to note some discrepancies. The study by Wantara and Tambrin (2019) found that product quality did not significantly impact loyalty, which contrasts with our findings. This discrepancy might be due to differences in industry contexts or consumer perceptions in different regions.

The results aligned with several studies included in the literature review. The study conducted by Mahsyar and Surapati (2020) found a significant relationship between product quality and customer satisfaction, which in turn has an immediate impact on customer loyalty. Similarly, Wantara and Tambrin (2019) emphasized that high service

quality alone does not guarantee loyalty; it was the combination of product quality and customer satisfaction that played a crucial role. Furthermore, it indicated that higher product quality increases customer satisfaction, hence fostering loyalty.

The Model 3 analysis, including customer satisfaction as a mediator, demonstrated that both product quality and customer satisfaction had significant effects on brand loyalty.

CONCLUSION

The research aimed to examine the effect of product quality on customer satisfaction and loyalty of El-Rayhan customers. The results of the data analysis conclude that all research alternative hypotheses are accepted:

H1a: "Product quality has a significant effect on brand loyalty"; **H1b:** "Product quality has a significant effect on customer satisfaction"; **H1c**: "Product quality and customer satisfaction have a significant effect on brand loyalty".

In light of El-Rayhan Company, we can say that as their product quality increases or decreases, it will affect the level of customer satisfaction. In turn, the level of customer satisfaction will determine the level of customer loyalty.

Limitations: Based on Krejcie and Morgan's data, a sample size of 384 is recommended when the population is equal to or greater than 1,000,000. Regrettably, only 291 out of 384 responses were obtained throughout the study.

Therefore, to improve the generalization of findings from research on the subject, future studies should increase their sample size. Moreover, the limited access to data and the absence of previous research explicitly targeting the Libyan context pose significant challenges.

RECOMMENDATIONS

Based on the study's findings, it is evident that product quality plays a significant role in determining customer loyalty and satisfaction. Therefore, firm management should:

1) Implement an interactive metrics system to track customer perceptions of product quality. Any decline or improvement in product quality can directly impact customer satisfaction, which ultimately affects customer loyalty.
2) Develop loyalty programs that reward repeat purchases. Offering discounts, special offers, and exclusive products for loyal customers can enhance satisfaction and loyalty.
3) Enhance the customer service experience by training staff to handle complaints effectively and ensure customer satisfaction.
4) Organize focus groups with loyal customers to discuss their preferences and any issues they face. This qualitative data can provide deeper insights into customer needs.

REFERENCES

[1]. Chaudhuri, Arjun and Holbrook MB. he chain of effects from brand trust and brand affect to brand performance: the role of brand loyalty. J Mark. 2001;65(2):81–93.
[2]. Garvin D. Competing on the eight dimensions of quality. Harv Bus Rev. 1987;65(6):101–9.
[3]. Walintukan, Cynthia and Tumbuan, Willem JFA and Tulung JE. he effect of product quality, sales promotion and social influence on customer purchase intention in Bellagio shoes store in Manado. J EMBA J Ris Ekon Manajemen, Bisnis Dan Akunt. 2018;6(4).
[4]. Atiyah L. Product's quality and its impact on customer satisfaction a field study in Diwaniyah dairy factory. In: Proceeding of the 10th International Management Conference: challenges of modern management November 3rd-4th Bucharest, Romania. 2016. p. 57–65.
[5]. Zeithaml, Valarie A and Bitner, Mary Jo and Gremler DD. Services marketing: Integrating customer focus across the firm. 7th ed. New York: McGraw-Hill; 2018.
[6]. Kotler, Philip and Keller, Kevin Lane and Brady, Mairead and Goodman, Malcolm and Hansen T. Marketing Management. 3rd ed. Pearson Higher Ed; 2016.
[7]. Oliver RL. Satisfaction: A behavioral perspective on the consumer: A behavioral perspective on the consumer. Routledge; 2014.
[8]. Simon, Carol J and Sullivan MW. The measurement and determinants of brand equity: A financial approach. Mark Sci. 1993;12(1):28–52.
[9]. Verbeke W. Consumer acceptance of functional foods: socio-demographic, cognitive and attitudinal determinants. Food Qual Prefer. 2005;16(1):45–57.
[10]. Juran JM. Juran on planning for quality. New York, NY Free Press. 1988;

[11]. Dick, Alan S and Basu K. Customer loyalty: toward an integrated conceptual framework. J Acad Mark Sci. 1994;22:99–113.

[12]. Sambo, Ejika and Ukpata, Ijuo Sunday and Atiga, Mary M and Fumba J. Impact of product quality on customer satisfaction and loyalty. Niger Acad Manag J. 2022;17(2):145–55.

[13]. Mahsyar, Syariful and Surapati U. ffect of service quality and product quality on customer satisfaction and loyalty. Int J Econ Bus Account Res. 2020;4(1).

[14]. Wantara, Pribanus and Tambrin M. The Effect of price and product quality towards customer satisfaction and customer loyalty on madura batik. Int Tour Hosp J. 2019;2(1):1–9.

[15]. Hoe, Ling Chen and Mansori S. The effects of product quality on customer satisfaction and loyalty: Evidence from Malaysian engineering industry. Int J Ind Mark. 2018;3(1):20.

[16]. Daikh J. The Relationship between Customer Satisfaction and Consumer Loyalty. J Compet Stud. 2015;23(1):49–60.

[17]. Krejcie, RV and Morgan D. Sample size determination table. Educ Psychol Meas. 1970;30:607–10.

[18]. Kite, Mary and Whitley BE. Principles of research in behavioral science. Routledge; 2012.

[19]. SimpliLearn. Exploring descriptive statistics: Everything you need to know! 2021;

[20]. Creswell, John W and Creswell JD. Research design: Qualitative, quantitative, and mixed methods approaches. Sage publications; 2017.