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Using the SERVQUAL Model to Assess Service Quality of Optical Centers in the West Bank-Palestine

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THESIS APPROVAL

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DECLARATION

I certify that this thesis submitted for the Master's degree in Quality Management is the result of my own research, except where otherwise acknowledged and that this thesis (or any part of the same) has not been submitted for a higher degree to any other university or institution.

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ABSTRACT

This study aims to assess the service quality of optical centers operating in the West Bank-Palestine using the SERVQUAL model and to investigate its impact on customers' satisfaction. The quantitative hypothesis-testing research approach is adopted. Primary data are collected, using random sampling technique, from 251 customers of optical centers in the West Bank-Palestine through personally-administered and online questionnaires.

The questionnaire, which is developed according to the SERVQUAL model, consists of three parts. The first one aims to collect data on socio-economic characteristics of respondents. The second part aims to collect data on the different dimensions of service using the 22 items of the model. Finally, the third part, which includes 11 items, aims to collect data on the overall level of customers' satisfaction. A five-point Likert scale is used in the second and third parts of the questionnaire. Data are analyzed using both descriptive as well as inferential statistical techniques including minimums, maximums, means, standard deviations, Mann-Whitney test, Kruskal-Wallis test, multiple regression, and Wilcoxon signed-rank test. The SPSS software is utilized in data analysis.

The findings reveal that the SERVQUAL model is a good tool in assessing the service quality in the optical centers operating in the West Bank-Palestine by identifying the gaps in the quality of the services they offer. In addition, the findings confirm that customers have higher expectations than perceptions in all of the five dimensions of the SERVQUAL model. Moreover, the findings show that customers are highly satisfied with an approximate satisfaction level of 77.4%. The findings also show that customers' perceptions on the level of service quality differ due to their age, education, and income

while gender, place of residence, employment status, and insurance status have no significant effect. Furthermore, customers' expectations on the level of service quality differ due to their place of residence, educational level, employment status, and level of income while gender, age, and insurance status has no significant effect. Finally, the built multiple linear regression model, having 70% coefficient of determination, shows that each dimension of the SERVQUAL model, with the exception of responsiveness, significantly affects satisfaction of customers.

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CHAPTER ONE

INTRODUCTION

1.1 Overview

This chapter starts with a general background. Then, an overview of optical centers in Palestine is given, the problem statement is defined, the questions of study are stated, its significance is highlighted, and the main objectives are determined. In addition, the theoretical framework and the corresponding study hypotheses are stated, and finally the thesis structure is outlined.

1.2 General Background

Nowadays, service-sector businesses operate in an environment characterized by severe competition. Therefore, focusing on the quality of services offered by these businesses is a prerequisite for them to be successful and thus be able to survive over the long-run. More succinctly, measuring the service quality level is important to manage and improve services provided to customers. Customer satisfaction is an important indicator of the level of this service quality (Alhashem et al., 2011).

In this regard, service quality is the level to which customers' expected needs and wants are met and satisfied (Parasuraman et al., 2002). This concept also refers to the difference between customers' expected quality of a service and customers' perceived quality of that service (Gronroos, 2001; Parasuraman et al., 1988). Moreover, many authors defined it similarly by saying that it is the degree to which customers' anticipations are realized from using the service (Dotchin and Oakland, 1994). Collectively, service quality is the total customers' perceptions regarding the extent to which a given service is regarded as inferior or superior (Zeithaml et al., 1990).

On the other hand, customer satisfaction is the extent to which a customer feels pleased or displeased after s/he compares perceived quality from the good or service with expected quality (Armstrong et al., 2014). In this sense, customer satisfaction is linked to the good or service quality. Similarly, it describes how much a specific customer is happy or unhappy due to comparing perceived performance from using a product or service with prior expectations (Nair, 2004).

Many researchers and academics worldwide emphasized that better service quality is the corner stone to achieve customer satisfaction, improve corporate image, retain current customers, attract new ones, and finally enhance corporate profits (Bahadori et al., 2014).

Service quality becomes more relevant in the arena of health because of its importance to people all over the world. Therefore, several studies are carried out on service quality in health care and the effect it has on patients' satisfaction. In this context, researchers and academics highlight the importance of these two concepts to achieve some goals including, among other goals, improving health care services. Eye care services, in particular, including optometry services offered by optical centers, are at the heart of the entire health care system.

In the Palestinian context, optical centers need to have a clear picture of the perceptions of their customers to be able to provide high level of quality services that meet and exceed customers' (patients') expectations, especially in light of the increasing competition among these centers that total 249 in Palestine (154 in the West Bank versus 95 in Gaza Strip).

Thus, and given the growing need to carry out more research on assessing the level of service quality and investigating its effect on various variables including, among other

variables, customers' satisfaction, this study aims to assess the service quality of optical centers operating in the West Bank-Palestine using the SERVQUAL model and to investigate its impact on their customers' satisfaction.

1.3 Optical Centers in Palestine

The profession of optometry in Palestine dates back to the 1970s. At that time, optometric facilities were primitive and dependent on the skills of optometrists. In addition, there were few optometrists and limited number of optical centers. Finally, limited types of eyeglasses were available. During the 1980s, the profession witnessed great progress due to providing the local market with optometric specialists who got their scientific degrees in the field from Arab and international universities. Currently, the profession has been rapidly developing. This development is reflected in increasingly qualified optometrists, wider range of goods and services offered to customers, and the advanced optical equipment that is used in eye examinations.

The Palestinian Council of Optometry and Optics, a member of the World Council of Optometry, was founded in 2005 to be the legal body that is responsible for regulating, organizing, and developing the optometry profession in Palestine. The council aims to protect and regulate the profession of optometry, make partnerships with the Ministry of Health and other related bodies to upgrade the level of services provided, encourage scientific research in this field, making the necessary amendments to the law and bylaw of the council, and participating in international conferences.

Services provided by optical centers in Palestine include, amongst others, testing the visual systems of their clients, conducting routine and comprehensive eye examinations, carrying out adult eye examinations, providing primary eye care, recommending clients to refer to ophthalmologists for specialty care for eye diseases and disorders, delivering

vision rehabilitation services for those who are experiencing vision impairment, and finally providing eyeglasses and contact lenses.

Lastly, it is worth saying that there are 249 licensed optical centers in Palestine (154 in the West Bank versus 95 in Gaza Strip). These optical centers employ approximately 441 optometrists, who are medical professionals whose job is to provide eye-related services including health of eyes, their physical structure, and overall vision system (Palestinian Council of Optometry and Optics, 2019). Unfortunately, there are no formal data on the contribution of this sector in the national economy.

1.4 Problem Statement

Service sector businesses have been growing at an increasing rate recently. Today, these businesses are encountering significant challenges mainly represented by intense competition, which in turn affects the success and survival of these businesses. Hence, delivering quality services is a main concern for these businesses (Ahmady et al., 2015) since it affects many important variables including, among other variables, customer satisfaction, customer value, and customer loyalty (Taylor, 1994).

Since there are 249 licensed optical centers operating in Palestine, the optical sector is characterized as highly competitive. This puts more and more pressure on these centers to improve their service quality in an attempt to enhance their customers' satisfaction. In the sequel, it is of great importance for optical service providers to assess their service quality and to investigate its effect on customer satisfaction. To this end, the study aims at assessing the quality of services delivered by optical centers operating in the West Bank-Palestine and investigating its impact on customer satisfaction through employing the SERVQUAL model.

1.5 Questions of Study

The study is carried out to answer the following questions:

1. What is the level of customers' *perceived* service quality in the optical centers in the West Bank-Palestine?
2. Does the level of customers' *perceived* service quality in the optical centers in the West Bank-Palestine vary due to socio-economic characteristics?
3. What is the level of customers' *expected* service quality in the optical centers in the West Bank-Palestine?
4. Does the level of customers' *expected* service quality in the optical centers in the West Bank-Palestine vary due to socio-economic characteristics?
5. Is there any significant statistical gap between *perceived* and *expected* service quality levels?
6. What is the overall level of customers' satisfaction in the optical centers in the West Bank-Palestine?

1.6 Significance of Study

The study derives its significance from many points. First, in increasingly competitive markets, particularly in the services sector, the emphasis on service quality is crucial to service businesses for both success and survival in the long-run. Moreover, in the Palestinian context, the optical sector is characterized by the severe competition due to having 249 licensed optical centers. Therefore, these centers have to focus on delivering better service quality to improve customer satisfaction. In addition, many optical centers do not realize the importance and role of quality services on their customer satisfaction. Therefore, the findings of this study will help optical centers assess their customers' perceived service quality and improve this quality, which in turn enhances customers'

satisfaction. Finally, despite the importance and effect of service quality on many variables including customer satisfaction, there is lack of studies on this topic in the Arab region and in Palestine in particular, especially in the optical sector. Thus, more empirical studies need to be carried out to fill this gap.

1.7 Objectives of Study

The study aims at using the SERVQUAL model to assess the quality of services delivered by optical centers in the West Bank-Palestine and to examine its effect on customer satisfaction. Below are the specific objectives:

1. To assess the level of customers' *perceived* service quality in the optical centers in the West Bank-Palestine.
2. To assess the level of customers' *expected* service quality in the optical centers in the West Bank-Palestine.
3. To examine if customers' *perceived* service quality in optical centers in the West Bank-Palestine vary due to socio-economic characteristics.
4. To examine if customers' *expected* service quality in optical centers in the West Bank- Palestine vary due to socio-economic characteristics.
5. To examine if there is any significant statistical gap between *perceived* and *expected* service quality levels.
6. To assess the overall level of customers' satisfaction in the optical centers in the West Bank-Palestine.

1.8 Theoretical Framework and Study Hypotheses

As mentioned previously, this study employs the SERVQUAL model to achieve its objectives. More details and discussion on the SERVQUAL are given in Chapter Two of this thesis. However, Figure 1.1 depicts the SERVQUAL model used in the study,

where each of the five dimensions is hypothesized to have an impact on customer satisfaction. More specifically, the SERVQUAL five dimensions are the independent variables and customer satisfaction is the dependent one. The model also includes the socio-economic profile which represents the demographics of the customers.

Accordingly, as shown in the model, the following research hypotheses could be formulated to be tested in the study:

H_1: There is a significant statistical difference in the *customers' perceptions* on the level of service quality in the optical centers in the West Bank-Palestine due to socio-economic characteristics (at significance level 5%).

H_2: There is a significant statistical difference in the *customers' expectations* on the level of satisfaction in the optical centers in the West Bank-Palestine due to socio-economic characteristics (at significance level 5%).

H_3: *Tangibles* has a significant statistical impact on customers' satisfaction in the optical centers in the West Bank-Palestine (at significance level 5%).

H_4: *Reliability* has a significant statistical impact on customers' satisfaction in the optical centers in the West Bank-Palestine (at significance level 5%).

H_5: *Responsiveness* has a significant statistical impact on customers' satisfaction in the optical centers in the West Bank-Palestine (at significance level 5%).

H_6: *Assurance* has a significant statistical impact on customers' satisfaction in the optical centers in the West Bank-Palestine (at significance level 5%).

H_7: *Empathy* has a significant statistical impact on customers' satisfaction in the optical centers in the West Bank-Palestine (at significance level 5%).

The following hypothesis is a general one that is not shown in the figure:

H_8: There is a significant statistical difference between the *perceived* and *expected* levels of service quality in the optical centers in the West Bank-Palestine (at significance level 5%).

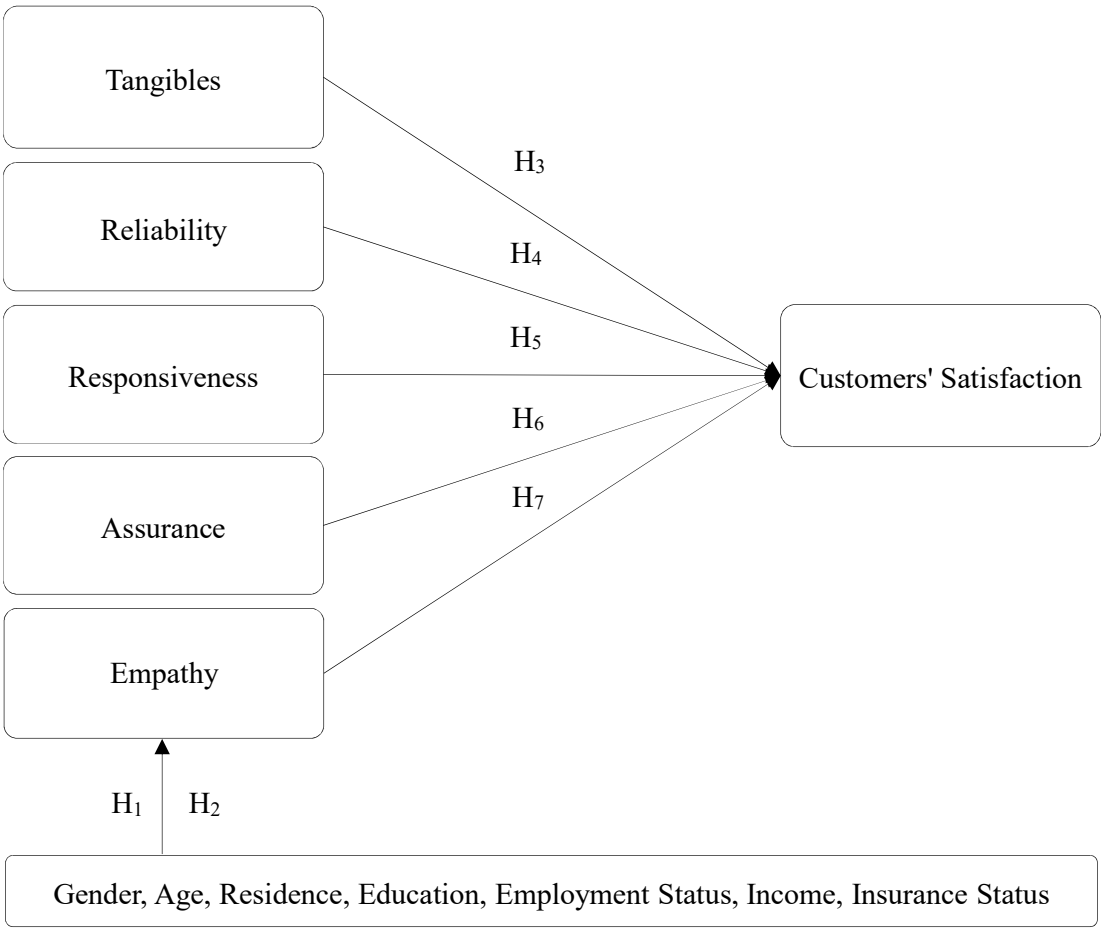

Figure 1.1: The SERVQUAL Model

1.9 Thesis Structure

The thesis is divided into five chapters. The first chapter is devoted to give an introduction to the study. The second chapter aims to review the literature. The third chapter discusses the research methodology. The fourth chapter presents data analysis and discussion. Finally, the last chapter provides conclusions, recommendations, and directions for future research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview

In this chapter, service quality in health care setting is discussed including its definition, importance, and measurement. In addition, patient satisfaction is discussed including its definition, importance, and determinants. Then, an overview of optical centers in Palestine is given. Finally, the most important empirical studies are reviewed.

2.2 Service Quality

In this section, the concept of service quality in the context of health care is defined, its importance is highlighted, and finally the measures of health care service quality are discussed.

2.2.1 Definition of Service Quality

The concept of quality in the context of service organizations is much more complex to define in comparison with manufacturing one. The reason is that services are intangible in nature. Despite this, many academics and researchers defined the concept of service quality from their viewpoints. Below is a review of the most important of these definitions in general and in health care setting in particular.

Health care service quality is defined in terms of technical and functional qualities. The first denotes the skills, procedures, and medical treatment whereas the second focuses on the manner of delivering these health services to patients (Alhassan et al., 2015).

Harrison and Estelami (2014) stated that service quality is the gap between perceived and expected services. Likewise, the service quality level is determined according to customer expectation where the level of quality increases when actual service and expected service are consistent (Lovelock et al., 2011).

Hoffman and Batesan (2010) defined service quality as a long-run customer opinion that is shaped due to a general assessment of service performance in a continuous way. According to Pantoja (2008), service quality refers to the overall evaluation of the services delivered to customers due to comparing their expectations and perceptions.

In addition, service quality describes the gap between customers' expectations and perceptions due to experiencing a given service. If customer's expectations are more than what s/he actually got, the service quality is considered low, and thus s/he will not be satisfied (Sahney et al., 2006).

Service quality is the discrepancy between what customers expect and perceive regarding the services they receive. Specifically, customers evaluate what they expected with what they in fact obtained. In this context, expectations reflect the wants of customers that they think service providers should deliver while perceptions denote customer' assessment of services provided, involving what services are delivered and how these services are delivered (Lovelock and Wright, 2002).

Weitz and Wessley (2002) regarded service quality as an indicator of the level to which services actually provided to customers are consistent with their expectations. This definition implies that service quality depends on customer's anticipations of what and how the service provider should deliver the service in comparison with how the service provider in reality meets those anticipations.

Similarly, service quality represents the difference between expected quality of services and perceived quality of these services (Gronroos, 2001). As stated by Parasuraman et al. (1988), service quality refers to the gap between expectations and perceptions of customers concerning the services they experience.

Service quality is also the degree to which service providers meet the expectations of customers who experience their services (Dotchinand Oakland, 1994). Moreover, service quality is the overall perceptions of customers regarding the extent to which the service is regarded as inferior or superior (Zeithaml et al., 1990). Earlier in 1985, Parasuraman et al. viewed service quality as a worldwide evaluation concerning the general excellence of the service.

Finally, to understand the concept of service quality, many academics and researchers established that this concept has several dimensions. For example, service quality is designated in terms of business, cooperative, and physical qualities (Lehtinen and Lehtinen, 1982).This concept is also described in terms of the nature of service provided (i.e. outcome quality) and how it is provided (i.e. process quality) (Gronroos, 1983).

In this study, service quality describes the gap between what clients of optical centers in the West Bank-Palestine expect and what they actually get.

2.2.2 Significance of Service Quality

Many empirical studies confirm that service quality of health care providers affects patient satisfaction. Thus, service quality precedes patient satisfaction (e.g. Dasanayaka et al., 2012; Kitapci et al., 2014). Service quality is typically viewed as the ancestor of satisfaction (Shan et al., 2016). Consistent with this, itis considered a management device that is used to enhance customer satisfaction (Baidoo et al., 2015).

Furthermore, excellent health care service quality leads to more trust and loyalty among patients. It is also necessary to reduce the cases of complaints and lawsuits (Zarei et al., 2012).

According to Kotler and Amstrong (2006), providers of services need to deliver quality services to gain distinctive advantage over their rivals since customers are now more

aware of quality issues than they were before. Earlier, Lim and Tang (2000) confirmed the same idea by saying that one of the most significant differentiation tools used by service businesses to build competitive advantages is service quality.

Delivering high quality services is crucial for businesses to have more satisfied customers and thus be able to compete locally, regionally, and even globally (Yaghmaie et al., 2007). Also, providing high quality services yields several benefits including, among other benefits, greater customer satisfaction, increased buy intents, enhanced customer loyalty (Fullerton, 2005), and word-of-mouth behavior (Mc Alexander et al., 2004). Providing quality services is very critical to attract and then retain customers (Kotler and Keller, 2006).

By providing better quality services than their rivals do, service providers can differentiate their services from that of others, therefore delivering value-added services to their customers. In turn, this leads to more retained customers (Thomas et al., 2002). According to Lee et al. (2000), service quality is a main predictor of customer satisfaction and positive word-of-mouth behavior.

Service quality contributes to: (1) service differentiation, (2) competitive advantage, (3) patient retention, (4) positive word-of-mouth, (5) reduced costs of attracting new customers, (6) improved financial performance, (7) more patient satisfaction, (8) bigger market share, and (9) increased patient loyalty (Yoon and Suh, 2004).

Earlier academics and researchers confirmed that providing superior service quality is important for businesses to increase their share in the market, improve ROI (Anderson and Zeithaml, 1984), decrease expenses, and enhance productivity (Garvin, 1983).

In the health care setting, providing quality services is essential because quality of services affects patients' trust, satisfaction, and value (Izadi et al., 2017). Health care

service quality leads to enhanced financial performance and more profits of health care providers (De Man et al., 2002). Moreover, health care service quality is important since it is a key driver of competitive advantage and profitability over the long-run (Brown and Swartz, 1989).

2.2.3 SERVQUAL Model

Assessing the service quality level in the health care industry is not an easy task since understanding patients' attitudes is difficult (Padma et al., 2009). Nevertheless, several models are employed to measure health care service quality from patients' perceptions (Bowers et al., 1994). Among these models, the SERVQUAL model is still the most important. Below is a discussion of this model.

Parasuraman et al. (1988) proposed a general scale –consisting of 22 items– to assess service quality in different service sectors called the SERVQUAL. The 22 items belong to the five dimensions describes below.

First, *tangibles* refers to physical aspects like equipment, facilities, and look of employees. Second, *reliability* represents the extent to which promised services are provided in dependable and accurate way. Third, *responsiveness* describes readiness to assist customers and deliver quick services. Fourth, *assurance* means knowledge and politeness of personnel and the capability to express confidence and trust. Finally, *empathy* deals with aspects related to level of caring and attention (Parasuraman et al., 1988).

Using the SERVQUAL model, expected and perceived quality levels are compared. To say it differently, the arithmetic difference between customers' expected and perceived quality levels across the 22 items of the model represents service quality (Kumar, 2009). This is why the SERVQUAL model is called as the "gap" model.

Applying the SERVQUAL model has several advantages. The first is that the model involves the different components needed to measure service quality. The second is that it is valid for different types of services including, among others, health care, banking, tourism, and education. Reliability of the scale is the third advantage. In addition, the scale includes relatively a few items, meaning that it can be answered quickly. Finally, its results are easy to be analyzed and interpreted (Isik et al., 2011; Padma et al., 2009).

Even though the SEVQUAL model has several advantages, it also faces some critiques. First, the dimensions of the scale can be reduced to only two, specifically, core and augmented services (McDougall and Leveresque, 1994). Furthermore, the scale cannot be applied in all service sectors unless the type of service sector is taken into consideration (Carman, 1990). Finally, the SERVQUAL model uses customers' anticipations as a reference point (Cronin and Taylor, 1992).

In this study, the SERVQUAL scale is adopted to assess the service quality level of optical centers in the West Bank-Palestine since most researchers used this model in the health care setting.

2.3 Patient Satisfaction

In this section, patient satisfaction is defined, the importance of this concept is highlighted, and finally its key determinants are discussed.

2.3.1 Definition of Patient Satisfaction

Empirical studies regarding satisfaction in the health care context can be traced back to 1960s. At first, academics and researchers concentrated on patient satisfaction to achieve positive treatment results due to following doctors' guidelines. Over time, empirical studies on patient satisfaction focused on assessing and then improving health

care services (Ziaei, 2011). The most important definitions of satisfaction in general and specifically in the health care industry are briefly discussed below.

Mukhtar et al. (2015) defined customer satisfaction as the perceptions-expectations gap due to using a good or a service. According to Saif (2014), customer satisfaction denotes the sense of pleasure that occurs when needs and wants of a given customer are realized.

Ilyas and Arif (2013) described satisfaction as the emotion by an individual from experiencing a product or a service that achieved his/her anticipations. Kotler and Keller (2012) say that satisfaction is the sensation of happiness due to comparing customers' perceptions with their expectations.

In addition, customer satisfaction denotes the consumers' actual experience with a certain service compared to previous anticipations (Zeithaml et al., 2009). As Petruzzellis et al. (2006) confirm, customers get satisfied if the services delivered to them are in agreement with their expectations.

In the same way, if services provided to a specific customer meet or even exceed his/her expectations, s/he will be more satisfied. Thus, satisfaction is an intended effort that makes customers feel happy (Rad and Yarmohammadian, 2006).

Customer satisfaction is viewed as an overall customer opinion on a given service, or a response to the gap between what a customer expects and what s/he gets, with reference to the fulfillment of a need or want (Hansemark and Albinsson, 2004).

Customer satisfaction is also defined as the feeling that arises as a result of comparing customers' anticipations and perceptions after using a given product or service (Aydin et al., 2005). Satisfaction describes the customer's feeling subsequent to meeting an expected outcome (Hon, 2002).

Kotler (2000) defines customer satisfaction as the extent to which an individual feels pleased or displeased due to comparing actual quality of a given good or service with previous expectations.

In the health care arena, patient satisfaction describes patients' feelings, attitudes, and perceptions of health care services provided to them by health care service providers (Mohan and Saikumar, 2011).

Moreover, patient satisfaction involves comparing patients' anticipations of health care services with actual services provided to them (Edlundet al., 2003).

Consistent with the previous definition, Brennan (1995) defined patient satisfaction as an individual's assessment of the degree to which services of heath care providers meet or exceed his/her anticipations. The same idea was also confirmed by Ware et al. (1983) who defined satisfaction in the health care arena as the level to which health care services meet patients' needs and anticipations. It also refers to an overall evaluation of certain features of health care services (Linder-Pelz, 1982).

In this study, customer satisfaction is defined as the level to which customers of optical centers in the West Bank-Palestine perceive that the services provided to them meet or even exceed their prior expectations.

2.3.2 Importance of Patient Satisfaction

Several empirical studies highlighted the importance of patient satisfaction with health care services. Below is a discussion of the importance of customer satisfaction, particularly in the health care context.

According to Mthethwa and Chabikuli (2016), health care service providers that have high levels of patient satisfaction are more able to compete in the market, get a bigger market share, and thus survive over the long-run.

Patient satisfaction is a main predictor of success for health care institutions over the long-run. Therefore, health care service providers seek to highly satisfy their patients (Madan and Goel, 2015).

Kotler and Keller (2011) emphasize that organizations with increasing numbers of satisfied customers are commonly considered as having good financial health.

In addition, patient satisfaction is a competitive tool for health care service institutions that enable them to generate more profits since patients are more interested in institutions that deliver quality services, which sequentially results in more satisfied patients (Yesilada and Direktor, 2010).

In the health care industry, patient satisfaction is critical due to three main reasons. First, highly-satisfied patients reduce the costs related to acquiring new clients. Second, if patients are satisfied, they are more likely to be retained. This is of great importance for health care providers since existing clients are of increasing value over time. Consequently, this leads to enhanced financial performance in the long-run. Finally, health care services can be improved when providers of these services are familiar with their clients (Friesner et al., 2009).

Moreover, if patients are satisfied, they will return to health care providers for other services and recommend these services to other people. This in turn will increase the service revenues of health care providers (Zaky, 2007). The same idea was previously confirmed by Speight (2005) who concluded that satisfied patients will come again to the health care provider, recommend it to other people, and comply with doctors' instructions.

Finally, when patients are satisfied, they are more likely to: (1) have good perceptions toward the health care provider, (2) come back to the same health care provider, (3)

comply with treatment instructions, and ultimately (4) reach good treatment results (Olumide, 1997).

2.3.3 Determinants of Patient Satisfaction

Many empirical studies are carried out by researchers and academics to examine causes of customer satisfaction in general and particularly patient satisfaction. Below is a brief discussion of these determinants.

Factors that influence customer satisfaction include, among other factors, polite and experienced personnel, reasonable pricing, value added, and speedy service (Shaw, 2005).

According to Bitner (1990), the way employees react to failure of service provision and their capability to meet customer needs and wants are the primary sources of customer satisfaction. Quite the reverse, unsuitable employee response to service delivery failure and their unacceptable behavior are sources of customer dissatisfaction. In 1985, Parasuraman et al. confirmed that providing services with high quality means more customer satisfaction.

In health care settings, many factors contribute to patient satisfaction including, amongst others, waiting time at health care service provider (Ameryoun et al., 2017), tangible aspects and cleanliness (Nadiri and Hussain, 2016), and assurance and responsiveness (Khamis and Njau, 2014). In addition, lack of trust leads to dissatisfaction with health care services, and vice versa (Shan et al., 2016).

According to Mpinga and Chastonay (2011), the main causes of patient satisfaction are: (1) quality of health care, (2) reasonability of costs, and (3) cooperation. The first includes proficient health care specialists, sufficient facilities and health equipment, and suitable diagnostic and treatment measures. The second involves affordable costs of

health care and availability of health insurance services. Finally, cooperation refers to incorporating patients and their families in the decision process.

Finally, it is concluded that the dimensions that mostly affect patient satisfaction include: (1) entry process, (2) nurses' care, (3) doctors' care, (4) staff care, (5) food and (6) room (Otani et al., 2009).

2.4 Overview of Optical Sector in Palestine

Providing quality and reasonably priced health care services becomes an increasingly significant challenge for health care providers worldwide, especially in developing countries. The optical sector is vital to the health care system. The health of eyes is important to overall health. Unless our eyes are healthy, our day-to-day activities including ability to work, study, play, and drive, among other activities, can be negatively affected.

In Palestine, there are 249 licensed optical centers. Among them 154 are located in the West Bank, whereas the remaining 95 are in Gaza Strip. These optical centers employ nearly 441 optometrists, who are medical professionals whose job is to provide eye-related services including health of eyes, their physical structure, and overall vision system (Palestinian Council of Optometry and Optics, 2019).The distribution of these centers among the different cities in Palestine is shown in Table 2.1.

The requirements and licensing process of optometrists vary across countries. Generally speaking, optometrists are licensed to make a diagnosis and provide treatment to eye diseases and disorders, and describe medicines to patients. Although they are not physicians, they are granted many privileges as doctors.

However, optometrists in Palestine spend much of their time to test the visual systems of their clients. They deliver routine and comprehensive eye examinations, adult eye

examinations, primary eye care, referrals to ophthalmologists for specialty care for eye diseases and disorders, contact lens fittings and evaluation, prescription services, vision rehabilitation services for those who are experiencing vision impairment, and provision of eyeglasses and contact lenses.

Table 2.1
Distribution of Optical Centers in Palestine

City	Number of Optical Centers
West Bank	**154**
Jericho	2
Tubas	2
Salfit	4
Qalqilya	10
Tulkarm	12
Jenin	12
Bethlehem	16
Ramallah	26
Nablus	34
Hebron	36
Gaza Strip	**95**
Total	**249**

On the other hand, customers' complaints and dissatisfaction about the services provided by optical centers in Palestine can be summarized in two main points: (1) high cost of services and (2) lack of specialized staff in some eye care fields.

Finally, it is worth noting that the Palestinian Council of Optometry and Optics, established in 2005, and a member of the World Council of Optometry, is the legal body that regulates, organizes, and develops this profession in Palestine. This council aims to protect and regulate the profession of optometry, make partnerships with the Ministry of Health and other related bodies to upgrade the level of services provided, encourage scientific research in this field, making the necessary amendments to the law and bylaw of the council, and participating in international conferences.

2.5 Previous Empirical Studies

A vast body of literature exists regarding the effect of service quality on customer satisfaction worldwide. Below is a review of the most important studies in this context in the health care industry, and particularly in eye care.

Beginning from India, Kovai et al. (2019) investigated the differences in patient satisfaction with the services delivered by primary eye care centers between large and small villages in the rural areas of Andhra Pradesh state. The quantitative research design is adopted.

The researchers used the survey as an instrument to collect the primary data from a random sample of 136 patients to measure their satisfaction with services of vision centers. Statistical tests such as the Chi-square are used to investigate differences in patients' satisfaction.

The results show that patients have a good level of satisfaction with services of vision centers. Moreover, patients in the large villages reported higher satisfaction levels with serviced delivered by vision center services in comparison with those in the small villages. This difference is statistically significant. Finally, the most important factors

that affect patients' satisfaction with vision center services are: (1) location, (2) convenience, and (3) technicians' behavior.

In Romania, Raluba et al. (2018) assessed the patients' perceived quality of ophthalmology services provided by private institutions. To gather the primary data, The SERVQUAL scale was used. The sample of the study consisted of 100 participants who were selected using the snowball technique. Cronbach Alpha and factor analysis were used to validate the SERVQUAL scale.

The findings confirm that tangibility has the maximum gap value while reliability has the minimum gap value. In addition, improving the quality of ophthalmology services leads to both marketing effectiveness and operating efficiency.

In India, Arukutty (2018) assessed the medical service quality in 30 hospitals in Chennai City and investigated its impact on patients' satisfaction. The population of the study comprised all patients who had visited any of the 30 private hospitals in the city. The sample of the study was purposively selected from the population according to some criteria. The questionnaire, which was employed to collect the primary data, included questions to assess the service quality in the hospitals. Some adjustments were made to the SERVQUAL scale.

The researcher adopted the quantitative research method utilizing several tests such as Cronbach Alpha, Chi-square, regression analysis, factor analysis, and t-test. These tests were conducted using the SPSS software.

The findings reveal that patients' perceptions on service quality vary due to demographic characteristics. In addition, none of the patients' expectations is met in the five service quality dimensions.

In Ghana, Duku et al. (2018) investigated the impact of having health insurance on the perceived level health care services. The researchers used the quantitative hypothesis-testing methodology. To gather primary data, a survey of 1,903 households was used. The t-test was used to investigate if the perceptions of healthcare services significantly differ between those who have health insurance and those who do not have.

The main result of the study shows that patients' perceptions of health care services significantly differ between the insured and the uninsured. More specifically, the insured have lower perceptions than those of the uninsured and the formerly insured have lower perceptions than the perceptions of those who have never been insured.

In Poland, Stanislaw et al. (2018) examined the effect of patients' socio-demographic characteristics on their perceived healthcare service quality. The quantitative research design was utilized whereby primary data were gathered using the SERVQUAL scale from 412 patients. Inferential statistics were used to analyze data including the Shapiro-Wilk test, medians, lower and upper quartiles, the Fisher's test, the Chi-square test, the Mann-Whitney test, and the Spearman rank-order correlation coefficient.

The results indicate that patients' expected level of service quality exceeds their perceived level. Moreover, the results show that the socio-demographic characteristics that have an effect on service quality perceptions are gender, age, marital status, and place of residence. Finally, none of the socio-demographic characteristics significantly affects expected service quality.

In Palestine, and namely in Gaza Strip, Alkhalaileh et al. (2017) conducted descriptive analytical research to evaluate the satisfaction of patients with eye care services at the ophthalmology clinic of Saint John Hospital. The sample of study comprised 309 patients who were selected using the convenient sampling technique. The questionnaire

instrument was utilized to gather the primary data. Five elements of patients' satisfaction were included: (1) accessibility to eye care services, (2) physical facilities, (3) expectations of patients, (4) waiting time, and (5) communication and information. Data were analyzed using statistical tools including means, standards deviations, and ANOVA.

The findings indicate that the overall level of patients' satisfaction is roughly 64%. In addition, the maximum satisfaction level is nearly 68% for expectations of patients, whereas the minimum satisfaction level is approximately 59% for waiting time. In addition, the results indicate that the level of patients' satisfaction varies due to their characteristics. Specifically, the results indicate that old, female, low-educated, low-income, and chronic diseases patients have higher levels of satisfaction.

In Jordan, Al-Damen (2017) examined the effect of patients' perceptions of quality in health care services on their satisfaction at Al-Bashir governmental hospital. To achieve this objective, a survey was designed using the five dimensions of the SERVQUAL scale. Using the survey, data were collected from 448 patients. Different statistical tools including descriptive and inferential statistics were employed in data analysis.

The results indicate that patients' perceptions of quality in health care services significantly affect their satisfaction. Moreover, the findings indicate that reliability has the most impact of all dimensions.

In Brazil, Hercos and Berezovsky (2017) conducted an observational study to compare service quality of ophthalmology delivered to patients of public versus private health care systems and to specify measures that need more improvement. A questionnaire, based on a modified SERVQUAL scale, was used to gather data from 200 patients (101 from private and 99 from public health care systems) who were randomly selected from

the two states of Belo Horizonte and Minas Gerais in the country. Descriptive statistics were employed to analyze data.

The results reveal that, contrary to what is expected, patients who have private health care are less satisfied than patients of the public health care. In addition, the findings confirm that reliability, with the least level of satisfaction, is the most significant driver of quality under these two systems. Finally, public health care patients have higher level of satisfaction than their counterparts of private health care regarding the dimensions of tangibility, reliability, responsiveness, and assurance.

Also in Nigeria, Ibanga et al. (2017) assessed the level of perceived satisfaction by patients of the eye clinic in the University of Calabar Teaching Hospital. The researchers used the analytical descriptive research method. Data were collected, using a questionnaire, from 251 patients (139 males versus 112 females) who were randomly chosen. Descriptive statistics were used in data analysis using the SPSS.

The results indicate that patients have an overall mean level of satisfaction of 80%. In detail, 96% are satisfied with hospital cleanliness, 92% are satisfied with staff readiness to listen to patients, 81% are satisfied with the nurse staff, 71% are satisfied with doctors' follow-up with patients, and 60% are satisfied with time devoted by nurses. On the other hand, just 38% are satisfied with medicine cost, 39% are satisfied with transport cost, 40% are satisfied with lab cost, and 47% are satisfied with recordkeeping. Finally, dissatisfaction is primarily caused by cost of eye care services and recordkeeping.

Nawaz et al. (2016) investigated the effect of patients' perceptions of service quality on their satisfaction in four Pakistani hospitals. A survey was employed to gather data on patients' perceived service quality using the SERVQUAL model and their satisfaction.

Data were collected on patients' perceived service quality and satisfaction from a sample of 550 respondents from four private and public hospitals.

The researchers used descriptive statistics and regression analysis in data analysis utilizing the SPSS. The findings show that the five dimensions of the SERVQUAL model and patients' satisfaction are correlated. In addition, the results indicate that the level of patients' satisfaction vary due to type of hospital (i.e. public versus private).

In the United States, Christia and Ard (2016) examined the impact of demographic characteristics on patients' perceptions of service quality. The quantitative research approach was used. Primary data were gathered, using the SERVQUAL model, from 363 patients who were randomly selected. The ANOVA was used to test the study hypotheses with the aid of the SPSS.

The key finding of the study shows that the perceived service quality levels vary due to the demographic characteristics of age, level of income, and ethnicity. In contrast, occupation, status of patient, and location have no significant impact on perceived service quality.

Ezegwui et al. (2014) assessed the level of patients' satisfaction with eye care services provided to patients in the University of Nigerian Teaching Hospital. The researchers used the analytical descriptive approach. A questionnaire was sent to 307 patients who came to the eye clinic of the hospital.

The questionnaire contained questions on different dimensions of satisfaction such as the waiting time in the clinic, staff, facilities, and cleanliness, willingness to come another time or recommend the clinic to other patients.

The findings of study indicate that patients are satisfied with behavior of staff, proficiency of doctors, cleanliness, and facilities. However, patients are mainly dissatisfied with high cost and insufficient toilets.

Quddus et al. (2013) measured the extent of patients' satisfaction with eye care services at the Chittagong City hospital, Bangladesh. The study is an analytical descriptive one. Necessary data were gathered from 300 patients who were randomly interviewed. To analyze data, univariate analysis was utilized.

The results indicate that patients wait for a long period. The results also indicate that patients are dissatisfied with consultation services because nearly 34% of them do not know why they were admitted in the hospital. In addition, a large percentage of patients are not counseled before doing surgical operation. Conversely, patients are highly satisfied with food, cleanliness, and toilets of the hospital.

Kovai et al. (2012**)** examined the factors contributing to satisfaction with services of eye care from patients' viewpoints in rural India. The researchers adopted the analytical descriptive research design. Data were randomly gathered from 127 patients using a survey. Statistical analysis tools including factor analysis and regression analysis were utilized to investigate the relations with patient satisfaction.

Factor analysis determined three dimensions that jointly explain nearly 60% of total variance in patients' satisfaction with vision centers: (1) technicians, (2) location, and (3) access. Moreover, findings of study indicate that a good vision technician can improve patients' satisfaction. Nevertheless, patients' anticipations are not merely determined by eye care providers but also by other variables including, among other variables, ability to pay and ease of transport.

In Nepal, Rizyal (2012) evaluated the perceived satisfaction of patients who received ophthalmology services in Nepal Medical College. A descriptive research design was adopted with comprehensive enumeration of study population. Data were gathered using a survey. Descriptive statistics were used in data analysis with the aid of the SPSS.

The results indicate that more than 75% of patients are generally satisfied. Specifically, 76% are satisfied with health facility access, 88% are satisfied with their relations with doctors, 77% are satisfied with costs, and 62% are satisfied with waiting time.

In Jordan, Alrubaiee and Alkaa'ida (2011) examined the different relations between patients' perceptions of healthcare service quality, satisfaction, and confidence. The mediation effect of patients' satisfaction was also examined. Finally, they tested if patients' perceived levels of service quality, satisfaction, and trust differ due to socio-demographic characteristics. The necessary primary data were randomly gathered from 290 patients in four hospitals in Amman, Jordan. Three scales were used in the study: (1) perceived health care service quality, (2) patients' satisfaction, and (3) patients' trust. The SPSS software was employed in data analysis utilizing a number of techniques such as factor and regression analyses, ANOVA, and t-test.

The results show that the level of patients' perceptions of health care services positively affects their satisfaction. Besides, the results confirm that patients' satisfaction positively affects their trust. Furthermore, the relation between health care service quality and trust is mediated by satisfaction. In addition, the results indicate that perceived health care service quality, satisfaction, and trust vary due to some socio-demographic characteristics. Also, the results confirm that patients of private hospitals have higher perceived health care service quality than their counterparts of public

hospitals. Finally, the study findings show that patients of private hospitals feel more satisfied and trustful.

In Iran, Ziaei et al. (2011) investigated the factors affecting patient satisfaction with eye care services in Labbafinejad Medical Center, Tehran. The study sample, consisting of 539 patients, was selected using systematic random sampling. A survey was employed to gather data. The linear regression technique was used to measure the impact quality dimensions on total satisfaction. The main result indicates that both convenience and technical aspects have the strongest relation with total satisfaction.

Sudhan et al. (2011) assessed satisfaction of patients with eye care services at one of the hospitals in central India. The population of study consisted of all patients who got eye care services or admitted in the eye clinic of the tertiary hospital in central India whereas the sample of study included 320 patients who were randomly chosen. A questionnaire was employed to collect the primary data from the sample.

The findings show that excellent patients' satisfaction is reported by 48% of patients who received eye care services and 98% of patients who entered the hospital. On the other hand, patients are mainly dissatisfied due to long waiting time, dirtiness, and insufficient toilets. In addition, patients admitted in the hospital said that the quality of food is below expectation. Finally, patients are highly satisfied with child facilities.

In Germany, Schoenfelder et al. (2011) analyzed the variables that are associated with patients' satisfaction with ophthalmic services. The primary data were gathered through a questionnaire, using random sampling, from 507 patients cured in any of the eye clinics in the country. Bivariate, multivariate, and factor analysis statistical techniques were used.

The study results indicate that two variables explain 55% of total variation in patients' satisfaction. These variables are medical care and service. Specifically, the results indicate that total satisfaction and medical care are strongly related, while total satisfaction and visit characteristics features are weakly related. Finally, the study results confirm that none of the demographic characteristics is related to overall satisfaction.

Heng (2011) conducted a cross sectional study to evaluate the service quality of private sector hospitals in the Malaysian city of Kuching. The necessary primary data were gathered using a questionnaire that is directed to a convenient sample of 300 patients. The SPSS software was utilized in data analysis, using statistical tools such as the t-test. The result of the study reveals the existence of significant differences between patients' expected and perceived levels in four service quality dimensions in these hospitals. The findings also show that patients are not satisfied with the services delivered to them.

In India, Kovai et al. (2010) compared the level of satisfaction with eye care services delivered by the vision centers in large versus small villages of rural areas in the state of Andhra Pradesh. A survey was used to gather the primary data from a random sample of 136 patients to assess their satisfaction regarding vision center services. Statistical techniques such as descriptive statistics and the Chi-square test are utilized in data analysis.

The results reveal that patients of vision centers have a good level of satisfaction. Numerically, patients of vision centers at large villages have higher satisfaction level with mean of 78% compared to those at small villages with mean of 69%. This difference is statistically significant for all aspects with the exception of two: (1) ease of finding vision center location and (2) glasses delivery time. Finally, the findings

emphasize that many aspects have to be further improved, particularly at distant eye care centers, including: (1) time of providing services, (2) performance of employees, and finally (3) quality and cost of eye care services.

Lin et al. (2009) assessed patients' expected and perceived quality of LASIK services. They also examined the relations among three variables: (1) loyalty, (2) perceived service quality, and (3) expected service quality.

A survey, based on the SERVQUAL scale, was developed to gather primary data. A sample of 463 patients who have experienced LASIK operations in the Chung Shan Medical University Eye Center, Taiwan participated in the study. Statistical tests including factor analysis, correlation, t-test, ANOVA, and SEM were used.

The results indicate that the service quality gap is significant (47% for expectations versus 57% for perceptions). In addition, the results reveal that the level of expected service quality varies due to type of job, whereas the mean perception score is negatively associated with the level of education. Finally, the findings confirm the existence of significant relations among the three study variables (i.e. patients' loyalty, expectations, and perceptions).

Jagadeesan et al. (2008) developed a survey to measure ophthalmology patients' level of satisfaction. A cross-sectional study was conducted whereby primary data were gathered using the survey from a random sample of 167 ophthalmology patients of one of the hospitals in North Carolina. Four dimensions are included in the survey: (1) interpersonal manner, (2) communication, (3) technical quality, and (4) proficiency. A 5-point Likert scale was used. Data analysis was carried out using descriptive statistics.

The results indicate that patients have a very good level of satisfaction. Specifically, average scores of 4.46, 4.27, 4.63 are reported for interpersonal manner and communication, technical quality, and proficiency, respectively.

In the kingdom of Bahrain, Luke (2007) assessed patients' expectations and perceptions of service quality in Awali Hospital. The quantitative research methodology was adopted. Using a SERVQUAL-based survey, primary data were gathered using stratified random sampling technique from 156 patients. Data were analyzed using statistical tests including descriptive statistics, paired-sample t-test, and ANOVA.

The results confirmed that each dimension of service quality has a significant gap score. Moreover, the results indicate that assurance has the maximum gap score. The results also indicate that the level of perceived service quality varies due to nationality and type of visit. Finally, the results show that the level of expected service quality varies due to gender, where females have higher expectations than males do.

Ademola-Popoola et al. (2005) assessed eye care service quality in one of the teaching hospitals in Nigeria. The authors used the analytical descriptive methodology. Using a survey, data were gathered from 124 patients. The survey included questions on socio-demographic characteristics, waiting time, costs, and support services.

The study findings reveal that long waiting time is reported by nearly 89% of surveyed patients mainly for consultation services. Around 67% of patients got their prescribed drugs from outside the hospital due to bureaucracy. However, the majority of patients said that they received sufficient explanation on their medical condition from the health staff. Finally, despite some problems in service delivery, many patients said that they feel satisfied with the quality of services.

Dawn et al. (2005) analyzed patient expected service quality regarding eye care. The quantitative approach was used. Data were obtained through a survey from 202 patients who visited any of four ophthalmology practices in the Duke University Eye Center. Different dimensions of service quality expectations are identified using factor analysis. The results identified four different dimensions of service quality expectation in eye care: (1) patient involvement, (2) personal characteristics, (3) diagnosis information, and (4) communication and medical competence. Moreover, the results revealed that the level of income is a main predictor of expected service quality regarding eye care. More specifically, higher expectations of patient involvement in eye care are associated with lower household income whereas higher expectations of communication and clinical competence are associated with higher household income

Finally, Meyer (1998) analyzed customer services in the optometric industry. The researcher used the quantitative descriptive methodology whereby data were gathered, from a convenient sample of 100 customers, using a SERVQUAL-based questionnaire. The findings show that reliability has the lowest gap score, followed by assurance and empathy dimensions, respectively. The results also indicate that perceptions of service quality vary due to customers' demographics. More specifically, levels of perceived service quality vary due to gender (males have lower perceptions than females), age (customers under 20 years have lower perceptions than the other age groups), and income.

CHAPTER THREE

RESEARCHMETHODOLOGY

3.1 Overview

This chapter discusses the methodology. Specifically, the research approach is identified, the population and sample of study are determined, data collection method is selected and the research instrument is described. Also, the validity and reliability of operational variables are assessed, the statistical analysis techniques are outlined, and finally some ethical issues are highlighted.

3.2 Research Approach

As stated previously, the aim of this study is to employ the SERVQUAL scale to assess the service quality of optical centers in the West Bank-Palestine and to examine its effect on customers' satisfaction.

Researchers could usually carry out qualitative, quantitative or mixed studies. The first approach is undertaken when data gathered are exploratory in nature. This type of research generates data from answers of interviewees, or from responses to open-ended questionnaires, or through observations, or from secondary sources. On the other hand, quantitative research is carried out when theories are developed and hypotheses are formulated regarding the phenomena of interest. This type of research generally collects data through structured questionnaires (Sekaran and Bougie, 2016). Mixed studies utilize both qualitative and quantitative approaches.

This study adopts the quantitative hypothesis testing empirical approach. More specifically, the primary data on the main variables are gathered from customers of optical centers in the West Bank-Palestine through a structured questionnaire that is both personally-administered and electronically-distributed.

3.3 Population and Sample

In this section, the population is identified and the corresponding sample size is calculated.

3.3.1 Population of Study

According to Sekaran and Bougie (2016), the population is the whole set of individuals, events, or things in which the researcher is interested whereas the sample is a subgroup of the entire population.

Since the aim of the current study is to employ the SERVQUAL to assess service quality of optical centers in the West Bank-Palestine and to examine its effect on customers' satisfaction, the population includes all customers of optical centers in the West Bank-Palestine.

Unfortunately, no official statistics are available on the total number of those customers in the West Bank-Palestine. However, globally, it is estimated that 60% of population wear glasses, contact lenses, or other visual aids (CBS, 2012). Assuming that the same percentage is applicable in the Palestinian context, then the estimated number of customers of optical centers in the West Bank-Palestine is 1.8 million, given that the total population in the West Bank-Palestine is 3 million (PCBS, 2020).

3.3.2 Sample of Study

The population of the study is estimated to be 1.8 million customers of optical centers in the West Bank-Palestine. The sample of the study is conveniently computed to be selected from the total population. Specifically, the needed sample size is calculated using the formula of Thompson (2012):

$$n = \frac{N \times p(1-p)}{([N-1 \times (d^2 \div z^2)] + p(1-p))}$$

where:

n: Sample size.

N: Population size (1.8 million).

z: Confidence level at 95% (1.96).

d: Error proportion (5%).

p: Probability of picking a choice (50%).

Accordingly, by substituting in the above formula, it is found that a random sample of 385 customers of optical centers in the West Bank-Palestine is needed to be surveyed.

3.4 Data Collection Method

Having developed the hypotheses of study, data regarding each variable in the hypotheses have to be collected. Generally, observations, interviews, and questionnaires are the main data collection methods when primary data need to be collected. Questionnaires are of three main types: (1) personally-administered questionnaires, (2) mail questionnaires, and (3) electronic questionnaires (Sekaran and Bougie, 2016).

This study adopts the questionnaire instrument as a data collection method since it is more efficient than the other methods. Specifically, questionnaires are personally-administered and electronically-distributed to customers of optical centers in the West Bank-Palestine. A total of 251 completed questionnaires are received within a period of approximately 9 weeks, from 11/02/2020 until 16/04/2020. This represents a response rate of 65%. All of these responses are found to be valid for further descriptive and inferential statistical analyses.

Questionnaires are electronically-distributed, together with personally-administered ones, for five main reasons: (1) they are easy to administer, (2) they can reach

anywhere, (3) they are not expensive, (4) their delivery is fast, and (5) respondents can answer at their own convenience.

3.5 Research Instrument

To collect primary data, a structured questionnaire is used. The SERVQUAL model, proposed by Parasuraman et al. in 1988, is mainly used to develop the questionnaire. The questionnaire starts with an introduction in which the purpose of study is stated and the privacy of data is assured. The questionnaire is made up of three parts as follows:

Part One: This part aims to collect data on respondents' socio-economic characteristics. This part includes the following seven items:

1. Gender: (2 categories).
2. Age: (5 categories).
3. Place of Residence: (4 categories).
4. Education: (7 categories).
5. Employment Status: (2 categories).
6. Household Income: (3 categories).
7. Insurance Status: (3 categories).

Part Two: This part aims to collect data on service quality level in the optical centers in the West Bank-Palestine using the SERVQUAL model. This part consists of 22 items belonging to the following five dimensions:

1. Tangibles: (4 items).
2. Reliability: (5 items).
3. Responsiveness: (4 items).
4. Assurance: (4 items).
5. Empathy: (5 items).

Part Three: This part, consisting of 11 items, aims to collect data on the level of customers' satisfaction with the services delivered by optical centers in the West Bank-Palestine.

A 5-point Likert scale is used in the second and third parts of the questionnaire, with 1 being "Strongly Disagree" and 5 being "Strongly Agree". All items are positively worded. Therefore, no items need to be reversed. Higher scores (moving from 1 to 5) indicate higher levels of expected or perceived service quality and higher levels of customer satisfaction. Both Arabic and English copies of the questionnaire are available in Appendix A.

The service quality level in the optical centers in the West Bank-Palestine and customer satisfaction are evaluated as shown in Table 3.1.

Table 3.1
Evaluation of Variables

Low	Moderate	High
1 –2.33	2.34 –3.66	3.67 –5

3.6 Validity and Reliability of Instrument

This section is dedicated to make sure that the instrument that is used to measure the different variables is really good. This is carried out by establishing the validity and reliability of the instrument that is employed to gather primary data.

3.6.1 Validity of Instrument

Validity is to the degree to which the instrument designed really measures the variable it is proposed to measure. In other words, validity is interested in whether the research instrument measures the right concept (Sekaran and Bougie, 2016).

According to Sekaran and Bougie (2016), content, criterion, and construct validities are the three kinds of validity to test the goodness of the measuring instrument. The first one is the most important among all.

Content validity makes sure that the measuring instrument contains enough and representative dimensions and items that capture the variable. In this context, the more the dimensions and items that tap the variable to be measured, the higher the content validity. The content validity of the measuring instrument can be confirmed by a number of expert judges.

To establish the content validity of the instrument, two expert judges evaluated the research instrument in terms of content, wording, form and sequencing of questions. Based on their feedback, the necessary modifications are made. Appendix B contains the details of expert judges who evaluated the research instrument.

3.6.2 Reliability of Instrument

Reliability of a measuring instrument reflects the extent to which it is free of bias and therefore makes sure that the instrument is consistent over time and across the different instrument items (Sekaran and Bougie, 2016).

To test the reliability of research variables, the coefficient of Cronbach Alpha is used. Generally, Cronbach Alpha coefficients that are less than 0.60, in the 0.70 range, and more than 0.80 are poor, acceptable, and good, respectively. In summary, higher Cronbach Alpha coefficients indicate higher levels of internal consistency of scale, and therefore the better the measurement instrument (Sekaran and Bougie, 2016).

The Cronbach Alpha coefficients are shown in Table 3.2. The results indicate that the Cronbach Alpha coefficients are 0.966 and 0.943 for service quality and customer satisfaction, respectively. These two coefficients are well above the minimum

acceptable level of 0.70 (Sekaran and Bougie, 2016). Thus, the reliability of each of these scales is good (Sekaran and Bougie, 2016).

Table 3.2
Cronbach Alpha Coefficients

Variable	Number of Items	Cronbach Alpha	
		Expectations	Perceptions
Service quality	**22**	**0.963**	**0.966**
Tangibles	4	0.853	0.887
Reliability	5	0.876	0.902
Responsiveness	4	0.915	0.924
Assurance	4	0.900	0.905
Empathy	5	0.903	0.904
Customer satisfaction	**11**		**0.943**

3.7 Statistical Analysis Techniques

Descriptive statistics as well as inferential statistics are employed to analyze data. More specifically, descriptive statistics are used to describe socio-economic characteristics of respondents. These statistics are also used to assess the service quality of optical centers in the West Bank-Palestine as well as customer satisfaction.

The t-test and the ANOVA are used to test if the level of customers' service quality and the level of customer satisfaction in optical centers in the West Bank-Palestine vary due to their socio-economic characteristics. However, if data are not normally-distributed, the nonparametric tests of Mann-Whitney and Kruskal-Wallis one-way ANOVA are used instead of the two previously mentioned tests, respectively.

Moreover, the paired t-test is utilized to test if the service quality gap in the optical centers in the West Bank-Palestine is significant. However, the Wilcoxon test is used instead if data do not follow normal distribution.

The multiple regression analysis technique, with ordinary least squares method, is used to examine the impact of each dimension of service quality on the customer satisfaction with the services of the optical centers in the West Bank-Palestine.

Finally, it is worth noting that the SPSS software is used in this study to conduct the statistical analysis.

3.8 Ethical Issues

Four ethical issues are worth mentioning with respect to this study. First of all, respondents were informed of the purpose of study in the questionnaire's cover page. Moreover, the information provided by respondents are treated as strictly confidential. In addition, no misrepresentation of data are deliberately made. Finally, there is no conflict of interest between this research from one hand and any other party from the other hand.

CHAPTER FOUR

DATA ANALYSIS AND DISCUSSION

4.1 Overview

This chapter presents data analysis and discussion. It starts with describing respondents' socio-economic characteristics. Moreover, the service quality in the optical centers in the West Bank-Palestine is assessed. In addition, customer satisfaction with the services delivered by optical centers in the West Bank-Palestine is evaluated. Finally, the research hypotheses are formally tested.

4.2 Respondents' Socio-Economic Characteristics

This section presents and discusses, in a descriptive way, respondents' socio-economic characteristics in terms of their gender, age, place of residence, educational level, employment status, household income, and insurance status.

Table 4.1 shows descriptive statistics of respondents' socio-economic characteristics. The results indicate that 28.3% of respondents are males while the remaining 71.7% of them are females. With respect to age groups, 10% of respondents are 20 years or less, nearly half of them (49.8%) are between 21 and 30 years, 24.3% are between 31 and 40 years, 10.8% are between 41 and 50 years, and 5.2 % are over 50 years.

Moreover, slightly less than two-thirds (64.9%) of respondents live in cities, 7.6% live in towns, 24.3% live in villages, and only 3.2% live in camps. In terms of educational level, less than 1% of respondents have no education, 4.4% have secondary or primary education, 2% have vocational training, 6% hold Diploma degree, 65.3% hold BA (Sc.) degree, 18.7% hold Master's degree, and 2.8% hold PhD degree.

The distribution of sample respondents according to employment status indicates that 65.3% of them are employed whereas the remaining 34.7% are unemployed. Regarding

household income, 2.8% have low income, 88.4% have moderate income, and 8.8 % have high income. Finally, 64.1% of respondents have health insurance, 33.1% have no health insurance, whereas 2.8% reported that their health insurance is under issuance.

Table 4.1
Respondents' Socio-Economic Characteristics

Variable	Category	Frequency	Percentage (%)
Gender	Male	71	28.3
	Female	180	71.7
Age	20 or less	25	10.0
	21–30	125	49.8
	31–40	61	24.3
	41–50	27	10.8
	Over 50	13	5.2
Place of residence	City	163	64.9
	Town	19	7.6
	Village	61	24.3
	Camp	8	3.2
Educational level	No education	2	0.8
	Primary/secondary	11	4.4
	Vocational training	5	2.0
	Diploma	15	6.0
	BA	164	65.3
	Master's	47	18.7
	PhD	7	2.8

Table 4.1
Respondents' Socio-Economic Characteristics

Variable	Category	Frequency	Percentage (%)
Employment status	Employed	164	65.3
	Unemployed	87	34.7
Household income	Low	7	2.8
	Moderate	222	88.4
	High	22	8.8
Insurance status	Health insurance	161	64.1
	No health insurance	83	33.1
	Under issuance	7	2.8

4.3 Service Quality in Optical Centers

This section analyzes the level of each SERVQUAL dimension in the optical centers in the West Bank-Palestine.

Tangibles Dimension

The gap analysis of tangibles dimension in the optical centers in the West Bank-Palestine is shown in Table 4.2. The results indicate that the tangibles dimension of the SERVQUAL model consists of four items which assess respondents' expected and perceived levels of the physical aspects in the optical centers in the West Bank-Palestine such as equipment, facilities, and appearance of employees.

When looking at each of the four items making up the tangibles dimension, it is clear that customers' expectations exceed their perceptions in all items. This is why the gap scores are all positive. The tangibles dimension has a gap score of 0.17. This indicates

that customers of optical centers in the West Bank-Palestine have higher expectations with respect to the tangibles dimension than perceptions.

Table 4.2
Gap Analysis of Tangibles

Item	Expectations Score (ES)	Perceptions Score (PS)	Gap Score (= ES - PS)
Tangibles 1	3.95	3.84	0.11
Tangibles 2	4.14	3.96	0.18
Tangibles 3	4.22	4.07	0.15
Tangibles 4	4.19	3.94	0.25
Total	**4.12**	**3.95**	**0.17**

Reliability Dimension

The gap analysis of reliability dimension in the optical centers in the West Bank-Palestine is shown in Table 4.3.

Table 4.3
Gap Analysis of Reliability

Item	Expectations Score (ES)	Perceptions Score (PS)	Gap Score (= ES - PS)
Reliability 1	4.22	4.04	0.18
Reliability 2	4.22	4.03	0.19
Reliability 3	4.19	3.95	0.24
Reliability 4	4.22	4.00	0.22
Reliability 5	4.18	3.88	0.30
Total	**4.21**	**3.98**	**0.23**

Table 4.3 indicates that the reliability dimension consists of five items which assess the degree to which promised services are provided to customers in a dependable and accurate way.

When looking at each of the five items making up the reliability dimension, it is evident that customers' expectations exceed their perceptions in all five items. This is why the gap scores are all positive. The reliability dimension has a gap score of 0.23. This indicates that customers of optical centers in the West Bank-Palestine have higher expectations with respect to the reliability dimension than perceptions.

Responsiveness Dimension

The gap analysis of responsiveness dimension in the optical centers in the West Bank-Palestine is shown in Table 4.4.

Table 4.4
Gap Analysis of Responsiveness

Item	Expectations Score (ES)	Perceptions Score (PS)	Gap Score (= ES - PS)
Responsiveness 1	4.17	3.96	0.21
Responsiveness 2	4.29	4.07	0.22
Responsiveness 3	4.33	4.20	0.13
Responsiveness 4	4.25	4.08	0.17
Total	**4.26**	**4.08**	**0.18**

Tables 4.4 shows that the responsiveness dimension of the SERVQUAL model consists of 4 items which assess customers' perceptions and expectations of the staff readiness to provide help to customers and deliver quick services.

When looking at each of the four items making up the responsiveness dimension of service quality, it is clear that customers have higher anticipations than perceptions in

all of the items. Thus, the gap scores are all positive. The responsiveness dimension has a gap score of 0.18. This shows that customers of optical centers in the West Bank-Palestine have higher anticipations than perceptions with regard to responsiveness.

Assurance Dimension

The gap analysis of assurance dimension in the optical centers in the West Bank-Palestine is shown in Table 4.5.

Table 4.5
Gap Analysis of Assurance

Item	Expectations Score (ES)	Perceptions Score (PS)	Gap Score (= ES - PS)
Assurance 1	4.15	4.02	0.13
Assurance 2	4.26	4.10	0.16
Assurance 3	4.43	4.29	0.14
Assurance 4	4.27	4.04	0.23
Total	**4.28**	**4.11**	**0.17**

As indicated by Table 4.5, the assurance dimension of the SERVQUAL model consists of 4 items which assess customer' perceptions and expectations of staff knowledge and politeness and the capability to express confidence and trust.

When looking at each of the four items making up the assurance dimension, it is obvious that customers have higher anticipations than perceptions in all of the items. Thus, the gap scores are all positive. The assurance dimension has a gap score of 0.17. This shows that customers of optical centers in the West Bank-Palestine have higher expectation with respect to the assurance dimension than perceptions.

Empathy Dimension

The gap analysis of empathy dimension in the optical centers in the West Bank-Palestine is shown in Table 4.6.

Table 4.6
Gap Analysis of Empathy

Item	Expectations Score (ES)	Perceptions Score (PS)	Gap Score (= ES - PS)
Empathy 1	4.15	4.02	0.13
Empathy 2	4.12	3.96	0.16
Empathy 3	4.12	3.95	0.17
Empathy 4	4.12	3.94	0.18
Empathy 5	4.19	4.08	0.11
Total	**4.14**	**3.99**	**0.15**

Table 4.6 indicates that the empathy dimension of the SERVQUAL model consists of 5 items which assess customers' perceptions of aspects related to the level of caring and attention.

When looking at each of the five items making up the empathy dimension, the conclusion is that customers have higher anticipations than perceptions in all of the items. This is why the gap scores are all positive. The empathy dimension has a gap score of 0.15. This shows that customers of optical centers in the West Bank-Palestine have higher expectations with respect to empathy dimension than perceptions.

Summary of SERVQUAL Dimensions

The gap analysis of all SERVQUAL dimensions in the optical centers in the West Bank-Palestine are summarized in Table 4.7. The results indicate that customers of optical centers in the West Bank-Palestine have higher service quality expectations than

perceptions regarding all of the five dimensions, with a gap score of 0.18. This means that none of the customers' expectations is met in all of the SERVQUAL dimensions. In detail, the gap scores are 0.17, 0.23, 0.18, 0.17, and 0.15 for tangibles, reliability, responsiveness, assurance, and empathy, respectively. This result is consistent with that of Arukutty (2018) who concluded that none of the expectations of patients is met in the five dimensions of service quality. Moreover, the results indicate that reliability and responsiveness have the most significant gap scores while tangibles, assurance, and empathy have less gap scores.

Table 4.7
Gap Analysis of SERVQUAL Dimensions

Dimension	Expectations Score (ES)	Perceptions Score (PS)	Gap Score (= ES - PS)
Tangibles	4.12	3.95	0.17
Reliability	4.21	3.98	0.23
Responsiveness	4.26	4.08	0.18
Assurance	4.28	4.11	0.17
Empathy	4.14	3.99	0.15
Total	**4.20**	**4.02**	**0.18**

4.4 Customer Satisfaction in Optical Centers

This section analyzes customer satisfaction with services delivered by the optical centers in the West Bank-Palestine as shown in Table 4.8. The results indicate that customers of the optical centers in the West Bank-Palestine have a high level of satisfaction, with an overall score of 3.87 out of a possible maximum of 5.

Table 4.8
Descriptive Statistics for Customer Satisfaction

Item	Std. Deviation	Mean	Qualitative Level
Cost of services	1.229	3.39	Moderate
Sense of wellbeing	1.043	3.66	Moderate
Waiting time	1.055	3.71	High
Services delivered	0.848	4.02	High
Explanation	0.962	3.95	High
Employees	0.867	4.06	High
Complaint procedures	1.055	3.80	High
Physical facilities	0.895	3.94	High
Cleanliness	0.873	4.12	High
Location	0.945	4.06	High
Total		**3.87**	**High**

The previous result is the same as that of Sudhan et al. (2011) who concluded that 48% of patients who received eye care services and 98% of patients who were admitted in the hospital reported an excellent level of satisfaction. It is also the same as the result of Kovai et al. (2010) who concluded that patients of vision centers have a good level of satisfaction. Finally, Jagadeesan et al. (2008) reached the same conclusion that patients are generally satisfied.

Although the overall level of customers' satisfaction in the optical centers in the West Bank-Palestine is high, they are less satisfied with two aspects. Namely, customers have a moderate level of satisfaction with the cost of services and the sense of wellbeing.

This result is in accord with that of Ibanga et al. (2017) who concluded that dissatisfaction is primarily caused by cost of eye care services. It is also consistent with the result of Ezegwui et al. (2014) who concluded that patients are mainly dissatisfied with the high cost. Finally, Kovai et al. (2010) reached the same conclusion that many aspects have to be improved including, among other things, the cost of eye care services.

4.5 Testing for Normality

Before testing hypotheses, it is necessary to test if data are normally-distributed. The well-known test of Kolmogorov-Smirnov is used to test for normality of data. The output of normality test for the five SERVQUAL dimensions as well as customer satisfaction data are shown in Table 4.9.

In this context, it is useful to recall that data do not follow normal distribution if $p < 0$ whereas data are normally-distributed if $p > 0$. Table 4.9 indicates that all dimensions of the SERVQUAL and customer satisfaction have significant P-values that are less than 0.05, meaning that there is a statistically significant deviation from normality. Therefore, it is concluded that data are not normally-distributed. The normality test plots from the SPSS are available in Appendix C.

In summary, data do not follow normal distribution. Thus, the nonparametric statistics of the Mann-Whitney test, the Kruskal-Wallis one-way ANOVA, and the Wilcoxon test are used.

Table 4.9
Kolmogorov-Smirnov Test

Dimension	Statistic	N (= df)	Sig.	Result
Perceived service quality				
Tangibles	0.135	251	0.000	Not normal
Reliability	0.136	251	0.000	Not normal
Responsiveness	0.137	251	0.000	Not normal
Assurance	0.146	251	0.000	Not normal
Empathy	0.138	251	0.000	Not normal
Expected service quality				
Tangibles	0.132	251	0.000	Not normal
Reliability	0.153	251	0.000	Not normal
Responsiveness	0.169	251	0.000	Not normal
Assurance	0.189	251	0.000	Not normal
Empathy	0.140	251	0.000	Not normal
Customer satisfaction				
	0.075	251	0.002	Not normal

4.6 Hypotheses Testing

In this section, the eight hypotheses that were previously-developed are tested using the appropriate statistical tests as shown in the following pages.

4.6.1 Test of Hypothesis 1

Recall that the fist hypothesis is as follows:

H_1: There is a significant statistical difference in the *customers' perceptions* on the level of service quality in optical centers in the West Bank-Palestine due to socio-economic characteristics (at significance level 5%).

- **Customers' Perceptions on Service Quality by Gender**

To test this sub-hypothesis, the Mann-Whitney test is used. This test is chosen since we are interested in comparing the means of an interval dependent variable (i.e. customers' perceived service quality) between two independent groups (males and females) while data are not normally-distributed.

The mean ranks of customers' perceived service quality by gender are shown in Table 4.10. The results show that the mean ranks are 113.20 and 131.05 males and females, respectively. This means that females have higher perceptions of service quality than males do.

Table 4.10
Mean Ranks of Perceived Service Quality by Gender

Gender	Sample Size	Mean Rank	Sum of Ranks
Male	71	113.20	8037.50
Female	180	131.05	23588.50

To formally test if the difference in service quality perceptions due to gender is statistically significant, the output of the Mann-Whitney test is shown in Table 4.11. The results indicate that the difference in customers' perceptions on the level of service quality in the optical centers in the West Bank-Palestine due to gender is not significant at the 0.05 level.

This conclusion is consistent with that of Luke (2007) who concluded that the level of perceived service quality does not vary due to gender.

Table 4.11
Mann-Whitney Test: Perceived Service Quality by Gender

Item	Value
Mann-Whitney U	5481.500
Wilcoxon W	8037.500
Z	-1.755
Significance (2-tailed)	0.079

- **Customers' Perceptions on Service Quality by Age**

To test this sub-hypothesis, the Kruskal-Wallis test is used. This test is selected since we are interested in comparing the means of an interval dependent variable (i.e. customers' perceived service quality) between more than two independent groups (five age groups) while data are not normally-distributed.

The mean ranks of customers' perceived service quality by age groups are shown in Table 4.12. The results indicate that the mean rank score is 165.52 for the first age group (i.e. 20 years or less), 118.96 for the second age group (i.e. 21-30 years), 133.07 for the third age group (i.e. 31-40 years), 97.44 for the fourth age group (i.e. 41-50 years), and 143.85 for the fifth age group (i.e. over 50 years).

Table 4.12
Mean Ranks of Perceived Service Quality by Age

Age Group	Sample Size	Mean Rank
20 or less	25	165.52
21-30	125	118.96
31-40	61	133.07
41-50	27	97.44
Over 50	13	143.85

To formally test if the difference in service quality perceptions between the different age groups is statistically significant, the output of the Kruskal-Wallis test is shown in Table 4.13.

Table 4.13
Kruskal-Wallis Test: Perceived Service Quality by Age

Item	Value
Sample size	251
Test statistic (Chi-square)	14.140
Degrees of freedom	4
Significance (2-sided)	0.007

Table 4.13 indicates that the difference in the customers' perceived service quality in the optical centers in the West Bank-Palestine between the different age groups is significant (χ^2 = 14.140, P = 0.007). To examine among which age groups the true differences lie, the multiple comparisons test is performed as shown in Table 4.14.

The results indicate that there is a significant difference between customers who are between 41 and 50 years old and customers who are 20 years old or less where the second age group has a higher level of perceived service quality. Similarly, there is a significant difference between customers who are between 21 and 30 years old and customers who are 20 years old or less where the second age group has higher perceptions of service quality. This result is consistent with that of Christia and Ard (2016) and Meyer (1998) who also confirmed that perceptions of service quality significantly differ between the different age groups. However, the authors did not test the age groups among which the true differences exist.

Table 4.14
Multiple Comparisons of Perceived Service Quality by Age

Category 1	Category 2	Test Statistic	Std. Error	Std. Test Statistics	Sig.	Adj. Sig.
41-50	21-30	21.516	15.398	1.397	0.162	1.000
41-50	31-40	35.621	16.772	2.124	0.034	0.337
41-50	Over 50	-46.402	24.494	-1.894	0.058	0.582
41-50	20 or less	68.076	20.139	3.380	0.001	0.007*
21-30	31-40	-14.106	11.332	-1.245	0.213	1.000
21-30	Over 50	-24.886	21.144	-1.177	0.239	1.000
21-30	20 or less	46.560	15.897	2.929	0.003	0.034**
31-40	Over 50	-10.781	22.165	-0.486	0.627	1.000
31-40	20 or less	32.454	17.230	1.884	0.060	0.596
Over 50	20 or less	21.674	24.810	0.874	0.382	1.000

* Significant at the 0.01 level, ** Significant at the 0.05 level.

- **Customers' Perceptions on Service Quality by Place of Residence**

To test this sub-hypothesis, the Kruskal-Wallis test is used. This test is selected since we are interested in comparing the means of an interval dependent variable (i.e. customers' perceived service quality) between more than two independent groups (four places of residence) while data are not normally-distributed.

The mean ranks of customers' perceived service quality by place of residence are shown in Table 4.15. The results show that the mean rank score is 123.04 for customers who live in cities, 131.89 for customers who live in towns, for 127.88 customers who live in villages, and 158.06 for customers who live in camps.

Table 4.15
Mean Ranks of Perceived Service Quality by Residence

Place of Residence	Sample Size	Mean Rank
City	163	123.04
Town	19	131.89
Village	61	127.88
Camp	8	158.06

To formally test if the difference between places of residence is statistically significant, the output of the Kruskal-Wallis test is shown in Table 4.16. The results indicate that customers' perceived level of service quality in the optical centers in the West Bank-Palestine has no significant difference due to place of residence at the 0.05 level. This conclusion is the same as that of Christia and Ard (2016) who concluded that service quality perceptions have no statistical difference vary due to patients' locations.

Table 4.16
Kruskal-Wallis Test: Perceived Service Quality by Residence

Item	Value
Sample size	251
Test statistic (Chi-square)	2.000
Degrees of freedom	3
Significance (2-sided)	0.572

- **Customers' Perceptions on Service Quality by Level of Education**

To test this sub-hypothesis, the Kruskal-Wallis test is used. This test is selected since we are interested in comparing the means of an interval dependent variable (i.e.

customers' perceived service quality) between more than two independent groups (seven educational levels) while data are not normally-distributed.

The mean ranks of customers' perceived service quality by educational level are shown in Table 4.17. The results show that the mean rank is 52.25 for customers who have no education, 141.68 for customers who have primary/secondary education, 103.50 for customers who have vocational education, 168.13 for customers who have diploma degrees, 131.47 for customers who have BA degrees, 100.32 for customers who have Master's degrees, and 92.43 for customers who have PhD degrees.

Table 4.17
Mean Ranks of Perceived Service Quality by Education

Educational Level	Sample Size	Mean Rank
No education	2	52.25
Primary/secondary	11	141.68
Vocational training	5	103.50
Diploma	15	168.13
BA	164	131.47
Master's	47	100.32
PhD	7	92.43

To formally test if the difference in the customers' perceived service quality between the educational levels is statistically significant, the output of the Kruskal-Wallis test is shown in Table 4.18. The results indicate that customers' perceived level of service quality in the optical centers in the West Bank-Palestine has significant difference due to educational level at the 0.05 level

Table 4.18
Kruskal-Wallis Test: Perceived Service Quality by Education

Item	Value
Sample size	251
Test statistic (Chi-square)	16.438
Degrees of freedom	6
Significance (2-sided)	0.012

To examine among which educational levels the true differences lie, the multiple comparisons test is performed as shown in Table 4.19.

The results in Table 4.19 indicate that there is a significant difference between customers who hold Master's degree and customers who hold Diploma degree where Diploma holders have higher perceptions on the level of service quality than Master's holders. This result is consistent with that of Lin (2009) who concluded that there are significant differences in service quality perceptions between different educational levels. However, Lin concluded that the perception score decreases with higher educational levels. This result is not consistent with that of Stanislaw et al. (2018) who concluded that there is no significant difference in the perceived level of service quality due to the level of education.

Table 4.19
Multiple Comparisons of Perceived Service Quality by Education

Category 1	Category 2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.
No education	PhD	-40.179	58.176	-0.691	0.490	1.000
No education	Master's	-48.069	52.386	-0.918	0.359	1.000
No education	BA	-79.223	51.618	-1.535	0.125	1.000
No education	Diploma	-115.883	54.619	-2.122	0.034	0.711
No education	Vocational training	-51.250	60.706	-0.844	0.399	1.000
No education	Primary/secondary	-89.432	55.775	-1.603	0.109	1.000
PhD	Master's	7.891	29.396	0.268	0.788	1.000
PhD	BA	39.044	28.003	1.394	0.163	1.000
PhD	Diploma	75.705	33.212	2.279	0.023	0.475
PhD	Vocational training	11.071	42.485	0.261	0.794	1.000
PhD	Primary/secondary	49.253	35.081	1.404	0.160	1.000
Master's	BA	31.153	12.005	2.595	0.009	0.199
Master's	Diploma	67.814	21.517	3.152	0.002	0.034*
Master's	Vocational training	3.181	34.131	0.093	0.926	1.000
Master's	Primary/secondary	41.363	24.303	1.702	0.089	1.000
Vocational training	BA	-27.973	32.940	-0.849	0.396	1.000
Vocational training	Diploma	-64.633	37.469	-1.725	0.085	1.000
Vocational training	Primary/secondary	38.182	39.1350	0.976	0.329	1.000
BA	Diploma	36.661	19.572	1.873	0.061	1.000
BA	Primary/secondary	10.209	22.599	0.452	0.651	1.000
Primary/secondary	Diploma	-26.452	28.802	-0.918	0.358	1.000

* Significant at the 0.05 level.

- **Customers' Perceptions on the Level of Service Quality by Employment Status**

To test the hypothesis that there is a significant statistical difference in the customers' perceptions on the level of service quality in optical centers in the West Bank-Palestine due to employment status, the Mann-Whitney test is used. This test is chosen since we are interested in comparing the means of an interval dependent variable (i.e. customers' perceptions on the level of service quality) between two independent groups (employed and unemployed) while data are not normally-distributed.

The mean ranks of customers' perceived service quality by employment status are shown in Table 4.20. The results show that the mean rank is 122.36 for employed customers and 132.86 for unemployed customers. This means that unemployed customers have higher perceived service quality than employed customers do.

Table 4.20
Mean Ranks of Perceived Service Quality by Employment

Employment Status	Sample Size	Mean Rank	Sum of Ranks
Employed	164	122.36	20067.50
Unemployed	87	132.86	11558.50

To formally test if this difference in the perceptions between the two groups is statistically significant, the output of the Mann-Whitney test is shown in Table 4.21. The results indicate that the difference in the customers' perceptions on the level of service quality in the optical centers in the West Bank-Palestine between the employed and the unemployed is not significant at the 0.05 level.

Table 4.21
Mann-Whitney Test: Perceived Service Quality by Employment

Item	Value
Mann-Whitney U	6537.500
Wilcoxon W	20067.500
Z	-1.090
Significance (2-tailed)	0.276

- **Customers' Perceptions on Service Quality by Level of Income**

To test this sub-hypothesis, the Kruskal-Wallis test is used. This test is selected since we are interested in comparing the means of an interval dependent variable (i.e. customers' perceived service quality) between more than two independent groups (three levels of income) while data are not normally-distributed.

The mean ranks of customers' perceived service quality according to level of income are shown in Table 4.22. The results show that the mean rank is 130.29 for customers who have a low level of income, 130.29 for customers who have a moderate level of income, and 130.29 for customers who have a high level of income.

Table 4.22
Mean Ranks of Perceived Service Quality by Income

Level of Income	Sample Size	Mean Rank
Low	7	128.07
Moderate	222	130.29
High	22	82.02

To formally test if the difference in the perceptions between the three levels of income is statistically significant, the output of the Kruskal-Wallis test is shown in Table 4.23.

The results reveal that the level of customers' perceived service quality in the optical centers in the West Bank-Palestine varies due to levels of income (χ^2 = 8.865, P = 0.012).

Table 4.23
Kruskal-Wallis Test: Perceived Service Quality by Income

Item	Value
Sample size	251
Test statistic (Chi-square)	8.865
Degrees of freedom	2
Significance (2-sided)	0.012

To examine among which levels of income the true differences lie, the multiple comparisons test is performed as shown in Table 4.24. The results show that customers' level of perceived service quality in the optical centers in the West Bank-Palestine differs significantly between customers who have a high level of income and customers who have a moderate level of income where the second category of have higher perceived service quality than the first category.

Table 4.24
Multiple Comparisons of Perceived Service Quality by Income

Category 1	Category 2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.
High	Moderate	48.270	16.218	2.976	0.003	0.009*
High	Low	46.049	31.486	1.462	0.144	0.431
Moderate	Low	-2.221	27.853	-0.080	0.936	1.000

* Significant at the 0.01 level.

This result is the same as those of Christia and Ard (2016) and Meyer (1998) who confirmed that there is a significant difference in the perceptions of service quality between the different income levels. However, the authors did not test the levels of income among which the true differences exist.

- **Customers' Perceptions on Service Quality by Insurance Status**

To test this sub-hypothesis, the Kruskal-Wallis test is used. This test is selected since we are interested in comparing the means of an interval dependent variable (i.e. customers' perceived service quality) between more than two independent groups (three groups of insurance status) while data are not normally-distributed.

The mean ranks of customers' perceived service quality by insurance status are shown in Table 4.25. The results show that the mean rank is 123.29 for customers who have health insurance, 130.81 for customers who have no health insurance, and 131.29 for customers whose health insurance is under issuance.

Table 4.25
Mean Ranks of Perceived Service Quality by Insurance Status

Insurance Status	Sample Size	Mean Rank
Health insurance	161	123.29
No health insurance	83	130.81
Under issuance	7	131.29

To formally test if the difference in the level of perceived service quality according to insurance status is statistically significant, the output of the Kruskal-Wallis test is shown in Table 4.26.

Table 4.26
Kruskal-Wallis Test: Perceived Service Quality by Insurance Status

Item	Value
Sample size	251
Test statistic (Chi-square)	0.626
Degrees of freedom	2
Significance (2-sided)	0.731

Table 4.26 indicates that the level of customers' perceived service quality in the optical centers in the West Bank-Palestine does not vary due to insurance status at the 0.05 level. This conclusion is different from the conclusion of Duku et al. (2018) who confirmed that customers' perceptions of healthcare quality vary due to health insurance status. They found that the insured and the formerly insured have lower perceived health care quality compared with the uninsured and those who have never been insured, respectively.

To summarize, customers' perceived level of service quality in the optical centers in the West Bank-Palestine varies due to their age, education, and income. Conversely, gender, place of residence, employment status, and insurance status have no significant impact on perceived service quality.

4.6.2 Test of Hypothesis 2

Recall that the second hypothesis is as follows:

H_2: There is a significant statistical difference in the *customers' expectations* on the level of service quality in optical centers in the West Bank-Palestine due to socio-economic characteristics (at significance level 5%).

- **Customers' Expectations on Service Quality by Gender**

To test this sub-hypothesis, the Mann-Whitney test is used. This test is chosen since we are interested in comparing the means of an interval dependent variable (i.e. customers' expected service quality) between two groups (males and females) while data are not normally-distributed.

The mean ranks of customers' expected service quality by gender are shown in Table 4.27. The results show that the mean rank is 129.14 for males and 124.76 for females. Thus, males have higher expected level of service quality than females do.

Table 4.27
Mean Ranks of Expected Service Quality by Gender

Gender	Sample Size	Mean Rank	Sum of Ranks
Male	71	129.14	9169.00
Female	180	124.76	22457.00

To formally test if the difference in service quality expectations due to gender is statistically significant, the output of the Mann-Whitney testis shown in Table 4.28.

Table 4.28
Mann-Whitney Test: Expected Service Quality by Gender

Item	Value
Mann-Whitney U	6167.000
Wilcoxon W	22457.000
Z	-0.431
Significance (2-tailed)	0.667

Table 4.28 shows that the level of customers' expected service quality in the optical centers in the West Bank-Palestine does not vary between males and females at the 0.05 level.

This conclusion is consistent with that of Stanislaw et al. (2018) who confirmed that expected service quality does not vary due to gender. On the other hand, this conclusion differs from that of Luke (2007) who concluded exactly the opposite, where females have higher expectations than males do.

- **Customers' Expectations on Service Quality by Age**

To test this sub-hypothesis, the Kruskal-Wallis test is used. This test is selected since we are interested in comparing the means of an interval dependent variable (i.e. customers' expected service quality) between more than two groups (five age groups) while data are not normally-distributed.

The mean ranks of customers' expected service quality by age groups are shown in Table 4.29. The results show that the mean rank is 142.88 for the first age group (i.e. 20 years or less), 123.76 for the second age group (i.e. 21-30 years), 120.67 for the third age group (i.e. 31-40 years), 121.00 for the fourth age group (i.e. 41-50 years), and 150.46 for the fifth age group (i.e. over 50 years).

Table 4.29
Mean Ranks of Expected Service Quality by Age

Age Group	Sample Size	Mean Rank
20 or less	25	142.88
21-30	125	123.76
31-40	61	120.67
41-50	27	121.00
Over 50	13	150.46

To formally test if the difference in the service quality expectations between the age groups is statistically significant, the output of the Kruskal-Wallis testis shown in Table 4.30.

Table 4.30
Kruskal-Wallis Test: Expected Service Quality by Age

Item	Value
Sample size	251
Test statistic (Chi-square)	3.409
Degrees of freedom	4
Significance (2-sided)	0.492

Table 4.30 indicates that the level of customers' expected service quality in the optical centers in the West Bank-Palestine does not statistically vary due to the age groups at the 0.05 level.

This conclusion is the same as that of Stanislaw et al. (2018) who found that the expected level of service quality does not differ between the age groups.

- **Customers' Expectations on Service Quality by Place of Residence**

To test this sub-hypothesis, the Kruskal-Wallis test is used. This test is selected since we are interested in comparing the means of an interval dependent variable (i.e. customers' expected service quality) between more than two groups (four places of residence) while data are not normally-distributed.

The mean ranks of customers' expected service quality by place of residence are shown in Table 4.31. The results show that the mean rank is 117.80 for customers who live in cities, 131.37 for customers who live in towns, 140.09 for customers who live in villages, and 172.88 for customers who live in camps.

Table 4.31
Mean Ranks of Expected Service Quality by Residence

Place of Residence	Sample Size	Mean Rank
City	163	117.80
Town	19	131.37
Village	61	140.09
Camp	8	172.88

To formally test if the difference in the service quality expectations between the different places of residence is statistically significant, the output of the Kruskal-Wallis test is shown in Table 4.32. The results show that customers' expected level of service quality in the optical centers in the West Bank-Palestine does not vary due to place of residence at the 0.05 level. This result agrees with that of Stanislaw et al. (2018) who concluded that the level of expected service quality does not vary due to the place of residence.

Table 4.32
Kruskal-Wallis Test: Expected Service Quality by Residence

Item	Value
Sample size	251
Test statistic (Chi-square)	7.831
Degrees of freedom	3
Significance (2-sided)	0.053

- **Customers' Expectations on Service Quality by Education**

To test this sub-hypothesis, the Kruskal-Wallis test is used. This test is selected since we are interested in comparing the means of an interval dependent variable (i.e.

customers' expected service quality) between more than two groups (seven educational levels) while data are not normally-distributed.

The mean ranks of customers' expected service quality by education are shown in Table 4.33. The results show that the mean rank is 100.25 for customers who have no education, 164.32 for customers who have primary/secondary education, 197.00 for customers who have vocational education, 173.40 for customers who have diploma degrees, 122.50 for customers who have BA degrees, 97.03 for customers who have Master's degrees, and 197.43 for customers who have PhD degrees.

Table 4.33
Mean Ranks of Expected Service Quality by Education

Educational Level	Sample Size	Mean Rank
No education	2	100.25
Primary/secondary	11	164.32
Vocational training	5	197.00
Diploma	15	173.40
BA	164	122.50
Master's	47	97.03
PhD	7	197.43

To formally test if the difference in the service quality expectations between the different educational levels is statistically significant, the output of the Kruskal-Wallis testis shown in Table 4.34.

Table 4.34
Kruskal-Wallis Test: Expected Service Quality by Education

Item	Value
Sample size	251
Test statistic (Chi-square)	29.188
Degrees of freedom	6
Significance (2-sided)	0.000

Table 4.34 indicates that the level of customers' expected service quality in the optical centers in the West Bank-Palestine significantly varies due to educational levels (χ^2 = 29.188, P = 0.000).

To examine among which educational levels the true differences lie, the multiple comparisons test is performed as shown in Table 4.35. The results indicate that there is a significant difference between customers with Master's degree and customers with PhD degree where PhD holders have higher level of expected service quality than Master's holders.

Similarly, customers with Master's degree and customers with Diploma degree have different levels of expected service quality where Diploma holders have higher expectations than Master's holders.

This result is inconsistent with that of Stanislaw et al. (2018) who concluded that the level of education does not affect their expected level of service quality.

Table 4.35
Multiple Comparisons of Expected Service Quality by Education

Category 1	Category 2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.
Master's	PhD	-100.397	29.385	-3.417	0.001	0.013*
Master's	BA	25.465	12.000	2.122	0.034	0.711
Master's	Diploma	76.368	21.509	3.551	0.000	0.008*
Master's	Vocational training	99.968	34.118	2.930	0.003	0.071
Master's	Primary/secondary	67.286	24.293	2.770	0.006	0.118
Masters'	No education	3.218	52.367	0.061	0.951	1.000
No education	PhD	-97.179	58.154	-1.671	0.095	1.000
No education	BA	-22.247	51.598	-0.431	0.666	1.000
No education	Diploma	-73.150	54.599	-1.340	0.180	1.000
No education	Vocational training	-96.750	60.683	-1.594	0.111	1.000
No education	Primary/secondary	-64.068	55.755	-1.149	0.251	1.000
BA	PhD	-74.932	27.993	-2.677	0.007	0.156
BA	Diploma	50.903	19.565	2.602	0.009	0.195
BA	Vocational training	74.503	32.927	2.263	0.024	0.497
BA	Primary/secondary	41.821	22.590	1.851	0.064	1.000
Primary/secondary	PhD	-33.110	35.068	-0.944	0.345	1.000
Primary/secondary	Diploma	-9.082	28.792	-0.315	0.752	1.000
Primary/secondary	Vocational training	-32.682	39.120	-0.835	0.403	1.000
Diploma	PhD	-24.029	33.200	-0.724	0.469	1.000
Diploma	Vocational training	23.600	37.455	0.630	0.529	1.000
Vocational training	PhD	-0.429	42.469	-0.010	0.992	1.000

* Significant at the 0.05 level.

- **Customers' Expectations on Service Quality by Employment Status**

To test this sub-hypothesis, the Mann-Whitney test is used. This test is chosen since we are interested in comparing the means of an interval dependent variable (i.e. customers' expected service quality) between two groups (employed and unemployed) while data are not normally-distributed.

The mean ranks of customers' expected service quality by employment status are shown in Table 4.36. The results show that the mean rank is 118.48 for employed customers and 140.17 for unemployed customers. This means that unemployed customers have higher level of expected service quality than employed customers do.

Table 4.36
Mean Ranks of Expected Service Quality by Employment Status

Employment Status	Sample Size	Mean Rank	Sum of Ranks
Employed	164	118.48	1,9431.50
Unemployed	87	140.17	1,2194.50

To formally test if the expected level of service quality statistically differs between the employed and the unemployed, the output of the Mann-Whitney test is shown in Table 4.37.

The results indicate that the level of customers' expected service quality in the optical centers in the West Bank-Palestine significantly varies between the employed and the unemployed at the 0.05 level where the employed have higher expectations than the unemployed.

Table 4.37
Mann-Whitney Test: Expected Service Quality by Employment Status

Item	Value
Mann-Whitney U	5901.500
Wilcoxon W	19431.500
Z	-2.254
Significance (2-tailed)	0.024

- **Customers' Expectations on Service Quality by Level of Income**

To test this sub-hypothesis, the Kruskal-Wallis test is used. This test is selected since we are interested in comparing the means of an interval dependent variable (i.e. customers' expected service quality) between more than two groups (three levels of income) while data are not normally-distributed.

The mean ranks of customers' expected service quality by level of income are shown in Table 4.38. The results show that the mean ranks are 165.71, 127.78, and 95.41 for customers who have low, moderate, and high levels of income, respectively.

Table 4.38
Mean Ranks of Expected Service Quality by Income

Level of Income	Sample Size	Mean Rank
Low	7	165.71
Moderate	222	127.78
High	22	95.41

To formally test if the difference in the service quality expectations between the different levels of income is statistically significant, the output of the Kruskal-Wallis testis shown in Table 4.39.

The results show that customers' expected level of service quality in the optical centers in the West Bank-Palestine significantly varies between the different levels of income ($\chi^2 = 6.146$, P = 0.046).

Table 4.39
Kruskal-Wallis Test: Expected Service Quality by Income

Item	Value
Sample size	251
Test statistic (Chi-square)	6.146
Degrees of freedom	2
Significance (2-sided)	0.046

To examine among which levels of income the true differences lie, the multiple comparisons test is performed as shown in Table 4.40.

Table 4.40
Multiple Comparisons of Expected Service Quality by Income

Category 1	Category 2	Test Statistic	Std. Error	Std. Test Statistics	Sig.	Adj. Sig.
High	Moderate	1,813.000	315.475	-1.994	0.023	0.069
High	Low	33.000	19.573	-2.248	0.012	0.037*
Moderate	Low	543.000	172.409	-1.357	0.087	0.262

* Significant at the 0.05 level.

Table 4.40 shows that the significant difference is between high-income customers and low-income customers where the second category of customers have higher expected service quality than the first category.

This result agrees with that of Dawn et al. (2005) who concluded that the level of income is a main predictor of expected service quality regarding eye care. More specifically, higher expectations regarding patient involvement in eye care are

connected with lower household income. Also, higher expectations of communication and clinical competence are associated with higher household income.

- **Customers' Expectations on Service Quality by Insurance Status**

To test this sub-hypothesis, the Kruskal-Wallis test is used. This test is selected since we are interested in comparing the means of an interval dependent variable (i.e. customers' expected service quality) between more than two groups (three groups of insurance status) while data are not normally-distributed.

The mean ranks of customers' expected service quality by insurance status are shown in Table 4.41. The results show that the mean rank is 121.95 for customers who have health insurance, 133.77 for customers who have no health insurance, and 127.00 for customers whose health insurance is under issuance.

Table 4.41
Mean Ranks of Expected Service Quality by Insurance Status

Insurance Status	Sample Size	Mean Rank
Health insurance	161	121.95
No health insurance	83	133.77
Under issuance	7	127.00

To formally test if the difference in the service quality expectations between the categories of insurance status is statistically significant, the output of the Kruskal-Wallis testis shown in Table 4.42.

The results show that customers' expected level of service quality in the optical centers in the West Bank-Palestine does not vary due to insurance status at the 0.05 level.

Table 4.42
Kruskal-Wallis Test: Expected Service Quality by Insurance Status

Item	Value
Sample size	251
Test statistic	1.456
Degrees of freedom	2
Significance (2-sided)	0.483

To summarize, customers' expected level of service quality in the optical centers in the West Bank-Palestine varies due to their place of residence, educational, employment status, and income. Conversely, gender, age, and insurance status have no significant impact on the level of expected service quality.

4.6.3 Regression Model

Recall that the third, fourth, fifth, sixth, and seventh hypotheses are as follows:

H_3: *Tangibles* has a significant statistical impact on customers' satisfaction in the optical centers in the West Bank-Palestine (at significance level 5%).

H_4: *Reliability* has a significant statistical impact on customers' satisfaction in the optical centers in the West Bank-Palestine (at significance level 5%).

H_5: *Responsiveness* has a significant statistical impact on customers' satisfaction in the optical centers in the West Bank-Palestine (at significance level 5%).

H_6: *Assurance* has a significant statistical impact on customers' satisfaction in the optical centers in the West Bank-Palestine (at significance level 5%).

H_7: *Empathy* has a significant statistical impact on customers' satisfaction in the optical centers in the West Bank-Palestine (at significance level 5%).

To test the above hypotheses, the multiple regression analysis is used. This analysis is selected since we are interested in explaining the variance in one dependent variable (i.e. customers' satisfaction) using more than one independent variable (i.e. SERVQUAL dimensions).

However, before running the multiple regression model, it is important to check the adequacy of the regression. More specifically, the order of the regression model has to be checked. For example, if a multiple linear regression model is to be run, it is assumed that the phenomenon really behaves in a linear manner (linearity assumption). In addition, the errors are assumed to be normally-distributed (normality assumption). Moreover, the errors are assumed to have constant variance (homoscedasticity assumption). Finally, the independent variables are assumed not to be highly related to each other (no collinearity assumption). Each of these assumptions is briefly discussed below.

Linearity requires that the independent variables in the regression model have a straight-line (i.e. linear) association with the response (dependent) variable. To test the assumption of linearity, the scatter plot matrix between each of the SERVQUAL dimensions and customer satisfaction is shown in Figure 4.1.

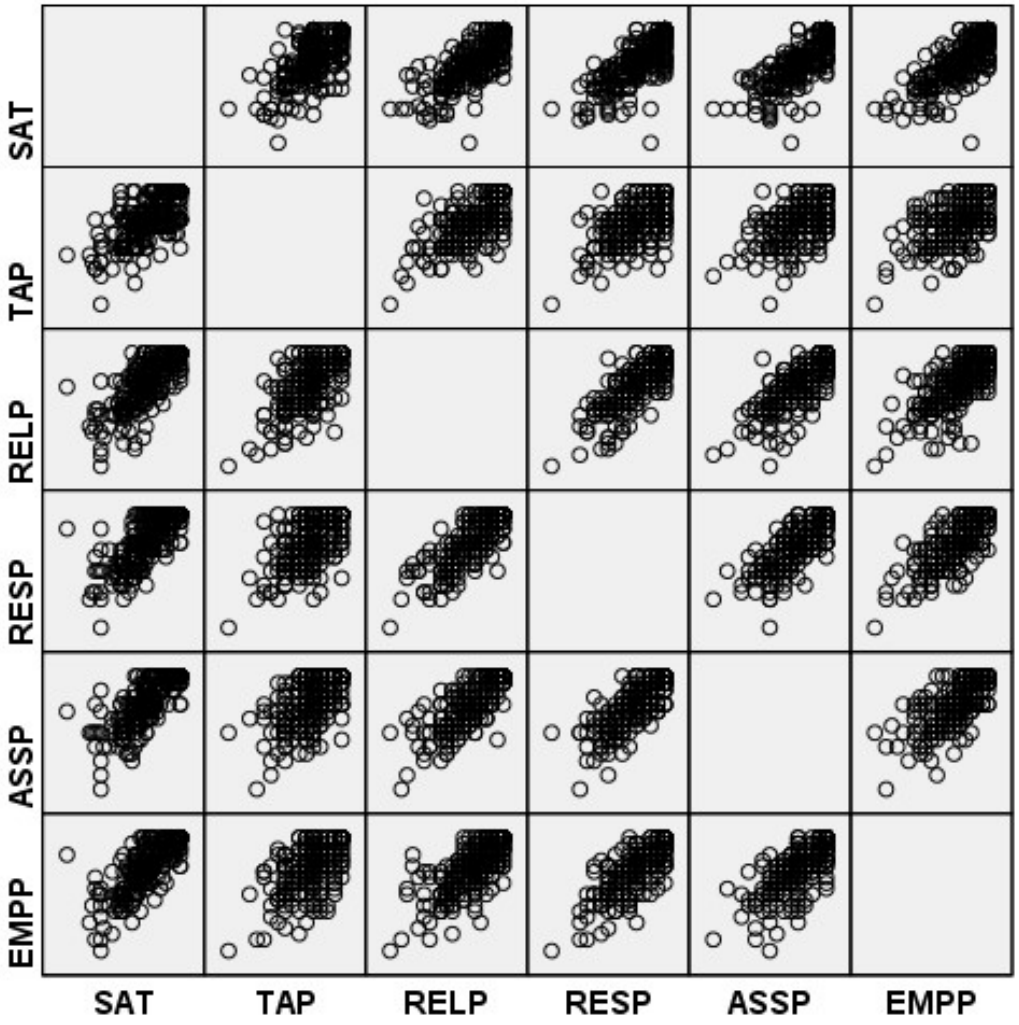

Figure 4.1: Scatter Plot Matrix

Where SAT stands for customer satisfaction, TAP stands for perceived tangibles, RELP stands for perceived reliability, RESP stands perceived responsiveness, ASSP stands for perceived assurance and EMPP stands for perceived empathy.

It is clear from the scatter plot matrix that the association between each of the SERVQUAL dimensions and customer satisfaction is linear. Therefore, the multiple linear regression model is chosen.

The assumption of normality requires the errors of the regression model to follow normal distribution. To test this, the normal predicted probability (P-P) plot is used as shown in Figure 4.2.

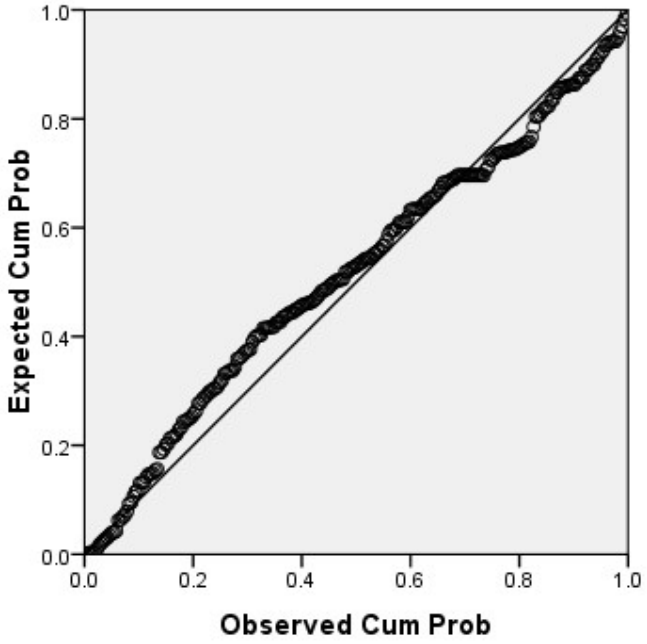

Figure 4.2: P-P Plot of Regression Residuals

The P-P plot shows that the little circles follow the normality line with a little bit of deviation. Therefore, the assumption that the errors follow normal distribution is established.

The homoscedasticity assumption requires the variance of the residuals to be constant. To test this assumption, the standardized predicted values are plotted against the regression standardized residuals as shown in Figure 4.3. The scatter plot in Figure 4.3 shows that as the regression predicted values increase, the variation in the regression residuals is roughly the same. Therefore, the homoscedasticity assumption is established.

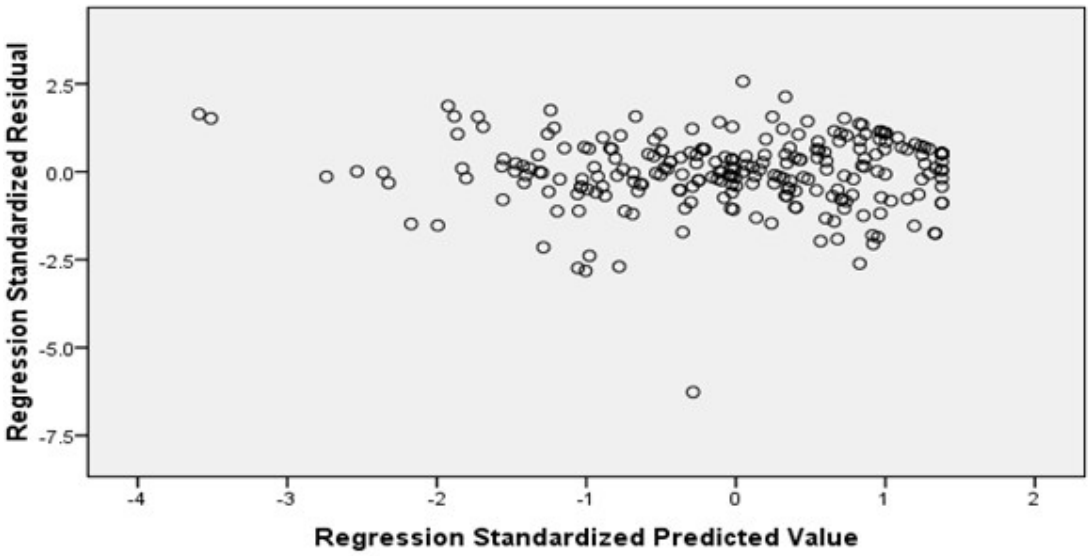

Figure 4.3: Pattern for Residuals Plot

Finally, the assumption of no multicollinearity requires no high correlations among the independent variables. Multicollinearity is typically measured using the variance inflation factor (VIF). The higher this factor, the more severe the multicollinearity. Some authors suggest that if the variance inflation factor (VIF) exceeds 10, multicollinearity is a problem (Sekaran and Bougie, 2016). The assumption of no multicollinearity is tested using the variance inflation factor (VIF) as shown in Table 4.43.

Table 4.43
Variance Inflation Factor (VIF) of Independent Variables

Independent Variable	Tolerance	VIF
Tangibles	0.538	1.860
Reliability	0.248	4.037
Responsiveness	0.223	4.475
Assurance	0.277	3.615
Empathy	0.325	3.073

Table 4.43 indicates that each of the five independent variables has a value of variance inflation factor (VIF) that is less than 5. Therefore, it is concluded that there is no multicollinearity problem.

Having checked the assumptions of linearity, normality, homoscedasticity, and no multicollinearity, it is time to run the multiple linear regression model by regressing the five SERVQUAL dimensions on customers' satisfaction in the optical centers in the West Bank-Palestine.

Test for Overall Significance of Regression Model

The overall significance of the estimated regression model is tested using the F-value as shown in Table 4.44.

Table 4.44
ANOVA for Testing Overall Significance of Regression Model

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F-Statistic	Sig.
Regression	109.104	5	21.821	119.169	0.000*
Errors	44.862	245	0.183		
Total	153.966	250			

* Significant at the 0.001 level.

The ANOVA table indicates that the F-statistic of 119.169 is significant at the 0.0001 level. Therefore, the overall regression model is significant.

Tests on Individual Regression Coefficients

The output of regressing the five service quality dimensions on customers' satisfaction in the optical centers in the West Bank-Palestine is shown in Table 4.45.

Table 4.45
Regression Results

Constant and Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	0.145	0.163		0.887	0.376
Tangibles	0.188	0.050	0.176	3.741	0.000*
Reliability	0.140	0.064	0.151	2.184	0.030**
Responsiveness	0.065	0.070	0.067	0.925	0.356
Assurance	0.239	0.063	0.249	3.793	0.000*
Empathy	0.295	0.057	0.315	5.211	0.000*

* Significant at the 0.001 level, ** Significant at the 0.05 level

Table 4.45 indicates that tangibles has a coefficient of 0.188. This coefficient is significant at the 0.001 level. The positive sign means that tangibles positively affects customer satisfaction. To say it differently, improving the tangibles in the optical centers in the West Bank-Palestine leads to more satisfied customers. Therefore, the hypothesis that tangibles has a significant statistical impact on customers' satisfaction in the optical centers in the West Bank-Palestine is supported.

This result is in agreement with that of Al-Damen (2017) who concluded that there is a statistically significant impact of patients' perceived health care services, including the tangibles dimension, on their satisfaction. Also, it is consistent with the result of Nawaz et al. (2016) who concluded that the SERVQUAL dimensions, including tangibles, and patients' satisfaction are correlated. Finally, this result is confirmed by that of Alrubaiee and Alkaa'ida (2011) who concluded that patients' perceived healthcare service quality, including tangibles, significantly affects their satisfaction.

Similarly, Table 4.45 indicates that reliability has a coefficient of 0.140. This coefficient is significant at the 0.001 level and positive, indicating that reliability has a significant positive impact on customer satisfaction. In other words, improving reliability in the optical centers in the West Bank-Palestine leads to more satisfied customers. Therefore, the hypothesis that reliability has a significant statistical impact on customers' satisfaction in the optical centers in the West Bank-Palestine is supported.

This result is compatible with that of Al-Damen (2017) who concluded that there is a statistically significant impact of patients' perceived quality of health care services, including reliability, on their satisfaction. It is also consistent with the result of Nawaz et al. (2016) who concluded that the SERVQUAL dimensions, including reliability, and patients' satisfaction are correlated. Finally, this result agrees with that of Alrubaiee and Alkaa'ida (2011) who concluded that patients' perceived healthcare service quality, including reliability, positively affects their satisfaction.

Likewise, Table 4.45 indicates that responsiveness has a coefficient of 0.065. However, this coefficient is insignificant at the 0.05 level. This means that responsiveness has no effect on customers' satisfaction. Therefore, the hypothesis that responsiveness has a significant statistical impact on customers' satisfaction in the optical centers in the West Bank-Palestine is not supported.

In the same way, Table 4.45 indicates that assurance has a coefficient of 0.239. This coefficient is significant at the 0.001 level. The coefficient has a positive sign, indicating that assurance has a positive effect on customers' satisfaction. This means that improving assurance in the optical centers in the West Bank-Palestine leads to more satisfied customers. Therefore, the hypothesis that assurance has a significant statistical

impact on customers' satisfaction in the optical centers in the West Bank-Palestine is supported.

This result is practically the same as that of Al-Damen (2017) who concluded that there is a statistically significant impact of patients' perceived health care services, including assurance, on their satisfaction. Moreover, it is consistent with the result of Nawaz et al. (2016) who concluded that the SERVQUAL dimensions, including assurance, and patients' satisfaction are correlated. Finally, this result is the same as that of Alrubaiee and Alkaa'ida (2011) who concluded that patients' perceived healthcare service quality, including the assurance dimension, significantly affects their satisfaction.

Finally, Table 4.45 indicates that empathy has a coefficient of 0.295. This coefficient is significant at the 0.001 level. Moreover, the coefficient has a positive sign, showing that empathy has a positive effect on customers' satisfaction. This means that improving empathy in the optical centers in the West Bank-Palestine leads to more satisfied customers. Therefore, the hypothesis that empathy has a significant statistical impact on customers' satisfaction in the optical centers in the West Bank-Palestine is supported.

This result is compatible with that of Al-Damen (2017) who concluded that there is a statistically significant impact of patients' perceived health care services, including the empathy, on their satisfaction. It is also in agreement with the result of Nawaz et al. (2016) who concluded that the SERVQUAL dimensions, including empathy, and patients' satisfaction are correlated. Finally, this result coincides with that of Alrubaiee and Alkaa'ida (2011) who concluded that patients' perceived health care service quality, including the empathy dimension, significantly affect their satisfaction.

The following regression equation summarizes the relationship between customer satisfaction and the significant SERVQUAL dimensions:

Satisfaction = 0.145 + 0.188 Tangibles + 0.140 Reliability

+ 0.239 Assurance + 0.295 Empathy

Standardized Regression Coefficients

Standardized regression coefficients (also called beta coefficients) are the coefficients resulting from a multiple regression analysis performed on variables that are standardized (i.e. transformed into variables with 0 mean and 1 standard deviation). These coefficients are used to compare the relative importance of each of the independent variables on the response (dependent) variable.

In order to know which among the significant SERVQUAL dimensions influences most the variance in customers' satisfaction, it is important to look at the column Beta under Standardized Coefficients in Table 4.45.

The results indicate that empathy is the most influential among the SERVQUAL dimensions whereas reliability is the least influential among all. This result is the opposite of that of Al-Damen (2017) and Hercos and Berezovsky (2017) who concluded that reliability has the most impact of all dimensions.

Coefficient of Determination (R^2)

To assess how well the regression model fits data, the coefficient of determination (R^2) is used. R^2 is the percentage of the variation in the response (dependent) variable that is explained by all of the independent variables in the model. An R^2 value of 1 means that the independent variables perfectly explain the response (dependent) variable. In other words, the regression model fits the data perfectly. In contrast, a value of 0 indicates that the independent variables do not explain the response (dependent) variable at all.

The coefficient of determination of the regression model is shown in Table 4.46.

Table 4.46
Coefficient of Determination

R	R Square	Adjusted R Square	Std. Error of Estimate
0.842	0.709	0.703	0.42791

Table 4.46 indicates that the adjusted R^2 for the regression model is 0.703. This indicates that almost 70% of the variation in customers' satisfaction in the optical centers in the West Bank-Palestine is explained by the variation in the five SERVQUAL dimensions that are included in the regression model.

To summarize, hypotheses 3, 4, 6, and 7are supported. On the other hand, hypothesis 5 is not supported.

4.6.4 Test of Hypothesis 8

The eighth hypothesis is as follows:

H_8: There is a significant statistical difference between the *perceived* and *expected* levels of service quality in the optical centers in the West Bank-Palestine (at significance level 5%).

- **Perceived and Expected Levels of Tangibles**

To test the hypothesis that there is a significant statistical difference in the perceived and expected levels of tangibles, the Wilcoxon test is used. This test is selected since we are interested in comparing differences between two related samples (i.e. perceived and expected levels of tangibles dimension) while data are not normally-distributed.

The descriptive statistics for perceived and expected levels of tangibles in the optical centers in the West Bank-Palestine are shown in Table 4.47.

Table 4.47
Descriptive Statistics for Perceived and Expected Tangibles

Variable	Sample Size	Mean	Std. Deviation
Perceived level of tangibles	251	3.9522	0.73635
Expected level of tangibles	251	4.1235	0.71076

Table 4.47 indicates that the mean value for the perceived level of tangibles is 3.95 while the mean value for the expected level of tangibles is 4.12. Thus, the gap score in the tangibles dimension is 0.17. This positive gap score means that customers of optical centers in the West Bank-Palestine have higher expectations regarding the tangibles dimension in comparison with their perceptions.

The ranks for perceived and expected levels of the tangibles dimension are shown in Table 4.48. The results indicate that 53 customers have higher perceptions concerning the tangibles dimension than expectations. On the other hand, 93 customers have higher expectations regarding the tangibles dimension than perceptions. Finally, 105 customers have equal levels of perceived and expected levels of tangibles.

Table 4.48
Rank for Perceived and Expected Tangibles

		Sample Size	Mean Rank	Sum of Ranks
Expected - Perceived	Negative ranks	53	55.55	2,944.00
	Positive ranks	93	83.73	7,787.00
	Ties	105		
	Total	251		

To test if the gap score of 0.17 in the tangibles dimension is statistically significant, the output of the Wilcoxon test is shown in Table 4.49.

Table 4.49
Wilcoxon Test: Perceived and Expected Tangibles

Item	Value
Z	-4.782
Significance	0.000

Table 4.49 indicates that the gap of 0.17 in the tangibles dimension is statistically significant at the 0.001 level. Thus, the hypothesis that there is a significant statistical difference between the perceived and expected levels of tangibles dimension in the optical centers in the West Bank-Palestine is supported.

This result is consistent with that of Heng (2011) who concluded that the differences between patients' expected and perceived levels of service quality, including the tangibles dimension, are significant.

- **Perceived and Expected Levels of Reliability**

To test the hypothesis that there is a significant statistical difference in the perceived and expected levels of reliability, the Wilcoxon test is used. This test is selected since we are interested in comparing the means of two variables in the same group (i.e. perceived and expected levels of reliability) while data are not normally-distributed.

The descriptive statistics for perceived and expected levels of reliability in the optical centers in the West Bank-Palestine are shown in Table 4.50. The results indicate that the mean value for the perceived level of reliability is roughly 3.98 while the mean value for the expected level of reliability is approximately 4.21. Thus, the gap score in the reliability dimension is 0.23. This positive gap score indicates that customers of optical centers in the West Bank-Palestine have higher expectations regarding reliability in comparison with their perceptions.

Table 4.50
Descriptive Statistics for Perceived and Expected Reliability

Variable	Sample Size	Mean	Std. Deviation
Perceived level of reliability	251	3.9785	0.84589
Expected level of reliability	251	4.2064	0.77540

The ranks for perceived and expected levels of the reliability dimension of service quality are shown in Table 4.51. The results indicate that 48 customers have higher perceptions with respect to the level of reliability dimension of service quality than expectations. On the other hand, 96 customers have higher expectations with respect to the level of reliability dimension of service quality than perceptions. Finally, 107 customers have equal levels of perceived and expected levels of reliability dimension of service quality.

Table 4.51
Rank for Perceived and Expected Reliability

		Sample Size	Mean Rank	Sum of Ranks
Expected - Perceived	Negative ranks	48	50.51	2,424.50
	Positive ranks	96	83.49	8,015.50
	Ties	107		
	Total	251		

To test if the gap score in the reliability dimension of service quality of 0.23 is statistically significant, the output of the Wilcoxon test is shown in Table 4.52. The results indicate that the gap of 0.23 in the reliability dimension of service quality is statistically significant at the 0.001 level. Thus, the hypothesis that there is a significant

statistical difference between the perceived and expected levels of reliability dimension of service quality in the optical centers in the West Bank-Palestine is supported.

This result is consistent with that of Heng (2011) who concluded that patients' expected and perceived levels of reliability are significantly difference.

Table 4.52
Wilcoxon Test: Perceived and Expected Reliability

Item	Value
Z	-5.608
Asymptotic significance	0.000

- **Perceived and Expected Levels of Responsiveness**

To test this sub-hypothesis, the Wilcoxon test is used. This test is selected since we are interested in comparing the means of two variables in the same group (i.e. perceived and expected levels of responsiveness) while data are not normally-distributed.

The descriptive statistics for perceived and expected levels of responsiveness dimension of service quality in the optical centers in the West Bank-Palestine are shown in Table 4.53.

Table 4.53
Descriptive Statistics for Perceived and Expected Responsiveness

Variable	Sample Size	Mean	Std. Deviation
Perceived level of responsiveness	251	4.0777	0.81666
Expected level of responsiveness	251	4.2600	0.77292

Table 4.53 indicates that the mean value for the perceived level of responsiveness is roughly 4.08 while the mean value for the expected level of responsiveness is 4.26. Therefore, responsiveness has a gap score of nearly 0.18, indicating that customers of

optical centers in the West Bank-Palestine have higher expectations regarding responsiveness in comparison with their perceptions.

The ranks for perceived and expected levels of responsiveness are shown in Table 4.54. The results indicate that 43 customers have higher perceptions with regard to the level of responsiveness than expectations. Moreover, 88 customers have higher expectations regarding the level of responsiveness than perceptions. Finally, 120 customers have equal levels of perceived and expected levels of responsiveness.

Table 4.54
Rank for Perceived and Expected Responsiveness

		Sample Size	Mean Rank	Sum of Ranks
Expected - Perceived	Negative ranks	43	52.97	2,277.50
	Positive ranks	88	72.37	6,368.50
	Ties	120		
	Total	251		

To test if the gap score of 0.18 in the responsiveness dimension is statistically significant, Table 4.55 shows the output of the Wilcoxon test. The results indicate that the gap of 0.18 in the responsiveness dimension is statistically significant at the 0.001 level. Thus, the hypothesis that there is a significant statistical difference between levels of perceived and expected responsiveness in the optical centers in the West Bank-Palestine is supported.

This result is consistent with that of Heng (2011) who concluded that patients' expected and perceived levels of service quality, including responsiveness, are significantly different.

Table 4.55
Wilcoxon Test: Perceived and Expected Responsiveness

Item	Value
Z	-4.736
Significance	0.000

- **Perceived and Expected Levels of Assurance**

To test this sub-hypothesis, the Wilcoxon test is used. This test is selected since we are interested in comparing the means of two variables in the same group (i.e. perceived and expected levels of assurance) while data are not normally-distributed.

The descriptive statistics for levels of perceived and expected assurance in the optical centers in the West Bank-Palestine are shown in Table 4.56. The results indicate that the mean value for the perceived level of assurance is roughly 4.11 while the mean value for the expected level of assurance is nearly 4.28. Thus, assurance has a gap score of nearly 0.17, which indicates that customers of optical centers in the West Bank-Palestine have higher expectations regarding assurance in comparison with their perceptions.

Table 4.56
Descriptive Statistics for Perceived and Expected Assurance

Variable	Sample Size	Mean	Std. Deviation
Perceived level of assurance	251	4.1116	0.81548
Expected level of assurance	251	4.2779	0.78020

The ranks for perceived and expected levels of the assurance are shown in Table 4.57. The results indicate that 47 customers have higher perceptions regarding the level of assurance than expectations. In contrast, 88 customers have higher expectations

concerning the level of assurance than perceptions. Finally, 116 customers have equal levels of perceived and expected levels of assurance.

Table 4.57
Rank for Perceived and Expected Assurance

		Sample Size	Mean Rank	Sum of Ranks
Expected - Perceived	Negative ranks	47	58.63	2,755.50
	Positive ranks	88	73.01	6,424.50
	Ties	116		
	Total	251		

To test if the gap score of 0.17 in assurance is statistically significant, the output of the Wilcoxon test is shown in Table 4.58. The results indicate that the gap of 0.17 in assurance is statistically significant at the 0.001 level. Thus, the hypothesis that perceived and expected levels of assurance in the optical centers in the West Bank-Palestine are significantly different is supported.

This result is consistent with that of Heng (2011) who concluded that patients' expected and perceived levels of service quality, including assurance, significantly differ from each other.

Table 4.58
Wilcoxon Test: Perceived and Expected Assurance

Item	Value
Z	-4.069
Significance	0.000

- **Perceived and Expected Levels of Empathy**

To test this sub-hypothesis, the Wilcoxon test is used. This test is selected since we are interested in comparing the means of two variables in the same group (i.e. perceived and expected levels of empathy) while data are not normally-distributed.

The descriptive statistics for levels of perceived and expected empathy in the optical centers in the West Bank-Palestine are shown in Table 4.59.

Table 4.59
Descriptive Statistics for Perceived and Expected Empathy

Variable	Sample Size	Mean	Std. Deviation
Perceived level of empathy	251	3.9904	0.83823
Expected level of empathy	251	4.1402	0.79625

Table 4.5 indicates that the mean value for the perceived level of empathy is roughly 3.99 while the mean value for the expected level of empathy is nearly 4.14. Thus, the gap score in the empathy dimension is nearly 0.15. This positive gap score indicates that customers of optical centers in the West Bank-Palestine have higher expectations regarding the empathy dimension in comparison with their perceptions.

The ranks for perceived and expected levels of empathy are shown in Table 4.60. The results indicate that 58 customers have higher perceptions regarding the level of empathy than expectations. In contrast, 75 customers have higher expectations concerning the level of empathy than perceptions. Finally, 118 customers have equal levels of perceived and expected empathy.

Table 4.60
Rank for Perceived and Expected Empathy

		Sample Size	Mean Rank	Sum of Ranks
Expected - Perceived	Negative ranks	58	53.96	3,129.50
	Positive ranks	75	77.09	5,781.50
	Ties	118		
	Total	251		

To test if the gap score of 0.15 in empathy is statistically significant, the output of the Wilcoxon test is shown in Table 4.61.

Table 4.61
Wilcoxon Test: Perceived and Expected Empathy

Item	Value
Z	-2.996
Significance	0.003

Table 4.61 indicates that the gap of 0.15 in empathy is statistically significant at the 0.01 level. Thus, the hypothesis that the levels of perceived and expected empathy in the optical centers in the West Bank-Palestine are significantly different is supported.

This result is consistent with that of Heng (2011) who concluded that patients' expected and perceived levels of service quality, including empathy, are significantly different.

To conclude, there are significant statistical differences between customers' perceptions and expectations in all SERVQUAL dimensions in the optical centers in the West Bank-Palestine.

This conclusion is consistent with that of Heng (2011) who indicated that patients' expected and perceived levels of service quality are significantly different in all

dimensions. In addition, Lin et al. (2009) reached concluded that the service quality gap is statistically significant.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Overview

In this chapter, the main conclusions of the study are presented, key recommendations are provided, some directions for future researchers are given, and finally limitations to the study are discussed.

5.2 Conclusions

The key conclusions of the study are as follows:

1. The SERVQUAL model is a good tool in assessing the service quality in one of the service industries; the optical centers working in West Bank-Palestine, for the purpose of identifying the gaps in the quality of the services they offer.
2. The findings of this study would be used by relevant decision makers to highlight some directions for service quality improvement in the optical centers working in the West Bank-Palestine.
3. The application of SERVQUAL in the optical centers in the West Bank-Palestine and the subsequent analysis and results deepened and enhanced the researcher's knowledge and skills in quality management as a whole and specifically service quality.
4. Customers of the optical centers in the West Bank-Palestine have higher service quality expectations than perceptions in all of the five dimensions.
5. Customers of the optical centers in the West Bank-Palestine are highly satisfied with the services provided by these centers with an approximate satisfaction level of 77.4%.

6. Customers' level of perceived service quality in the optical centers in the West Bank-Palestine significantly differ due to their age, education, and income. On the other hand, gender, place of residence, employment status, and insurance status have no significant impact on the level of perceived service quality.
7. Customers' level of expected service quality in the optical centers in the West Bank-Palestine significantly differ due to their place of residence, education, employment status, and income. On the other hand, gender, age, and insurance status have no significant impact on the level of expected service quality.
8. As shown in the built linear regression model (having 70% coefficient of determination), the SERVQUAL dimensions, excluding the responsiveness one, have significant statistical impacts on customers' satisfaction in the optical centers in the West Bank-Palestine.

5.3 Recommendations

On the basis of the above conclusions, the recommendations below are worth mentioning:

1. Optical centers in the West Bank-Palestine are highly recommended to design and implement customer-oriented strategies that focus on providing quality services so as to enhance customer satisfaction to be able to compete and thus guarantee a long-term presence in the market.
2. Optical centers in the West Bank-Palestine are encouraged to employ service quality, including all its dimensions, as a tool to make their products and services distinct from their rivals in the market.
3. Optical centers in the West Bank-Palestine need to further improve aspects related to the service quality dimensions of tangibles, reliability, responsiveness,

assurance, and empathy to minimize the gaps between customer expectations and perceptions.

4. Optical centers in the West Bank-Palestine are encouraged to periodically evaluate their customers' needs to produce value propositions that in turn satisfy these needs.
5. The quality gap in the SERVQUAL dimensions should be used by optical centers in the West Bank-Palestine as a guideline for planning and allocating their scarce resources.

5.4 Directions for Future Research

First, researchers are recommended to assess levels of service quality as well as satisfaction from viewpoints of stakeholders other than customers. Researchers are also advised to examine the effect of service quality, using scales other than the SERVQUAL model (e.g. SERVPERF), on customer satisfaction to confirm the results. Finally, interested researchers are encouraged to apply this study to other health care service providers.

5.5 Limitations of Study

The following limitations to the study are worth mentioning:

1. Due to declaring the state of emergency in Palestine as a result of corona virus while collecting primary data, the researcher faced difficulty in this stage in terms of the required sample size.
2. The SERVQUAL model is employed to gather data from customers of optical centers in the West Bank-Palestine. Although this model is applied worldwide, it has several limitations, as discussed previously, that should be kept in mind.

3. Some customers of the optical centers in the West Bank-Palestine were confused between perceptions and expectations while responding to the questionnaire that is used to collect data.

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APPENDIX A

QUESTIONNAIRE

Dear Participant,

The researcher, who is currently enrolled in the Master Program in Quality Management at the Arab American University, Ramallah Branch, is conducting a study titled "**Using the SERVQUAL Model to Assess Service Quality of Optical Centers in the West Bank-Palestine**".

This questionnaire is designed to gather the necessary data. The data you provide will help the researcher understand the service quality of the optical centers and the impact of this quality on customer satisfaction. Because you are the one who can give a correct picture in this regard, please respond to the questions honestly. Completing the questionnaire takes no more than five minutes.

Your responses will be dealt with as confidential. Your responses will only be used for the purpose of scientific research.

Thank you in advance. I appreciate your help.

Cordially,

Ruba Al-Khalil

Section One: Socio-Economic Characteristics

Please circle the number of the appropriate response for you in respect of the following:

1. Gender:

1. Male
2. Female

2. Age:

1. 20 years or less
2. 21–30 years
3. 31–40 years
4. 41–50 years
5. Over 50 years

3. Place of residence:

1. City
2. Town
3. Village
4. Camp

4. Highest completed level of education:

1. No education
2. Primary / secondary
3. Vocational training
4. Diploma
5. BA
6. Master's
7. PhD

5. Employment status:

1. Employed
2. Unemployed

6. Average household income:

1. Low
2. Moderate
3. High

7. Health insurance status:

1. Insured
2. Uninsured
3. Insurance under issuance

Section Two: Service Quality						
Please respond to each item using the scale given below, and indicate your response number on the box by each item:						
Strongly Disagree (1)	**Disagree (2)**	**Neutral (3)**	**Agree (4)**	**Strongly Agree (5)**		
Statement					**Expected Quality**	**Perceived Quality**
Dimension 1: Tangibles						
1. The optical center has modern-looking equipment.						
2. The optical center's physical facilities are visually appealing.						
3. The optical center's staff are well dressed and appear neat.						
4. The physical facilities are in line with the type of services provided.						
Dimension 2: Reliability						
5. When the optical center promises to do something, it does so.						
6. When I have a problem, the optical center shows a sincere interest in solving it.						
7. The optical center provides its services right the first time.						
8. The optical center provides its services at the time it promises to do so.						
9. The optical center keeps customers' records and files accurately.						
Dimension 3: Responsiveness						
10. The optical center tells customers exactly when services will be provided.						

Section Two: Service Quality					
Please respond to each item using the scale given below, and indicate your response number on the box by each item:					
Strongly Disagree (1)	**Disagree (2)**	**Neutral (3)**	**Agree (4)**	**Strongly Agree (5)**	
Statement				**Expected Quality**	**Perceived Quality**
11. I receive prompt service from employees of the optical center.					
12. Employees in the optical center are always willing to help me.					
13. Employees of this optical center respond to customer requests promptly.					
Dimension 4: Assurance					
14. I can trust employees of this optical center.					
15. I feel safe in my transactions with this optical center.					
16. The optical center's employees are polite.					
17. Staff get adequate support from the optical center to do their job well.					
Dimension 5: Empathy					
18. The optical center gives me individual attention.					
19. The optical center has employees who give me personal attention.					
20. Employees of the optical center understand my specific needs.					
21. The optical center has my best interests at heart.					
22. The optical center has convenient operating hours.					

Section Three: Customer Satisfaction				
Please respond to each item using the scale given below, and indicate your response number on the box by each item:				
Strongly Disagree (1)	**Disagree (2)**	**Neutral (3)**	**Agree (4)**	**Strongly Agree (5)**

Statement	**Satisfaction**
1. I am satisfied with the cost of services of the optical center.	
2. I am satisfied with the sense of wellbeing in the optical center.	
3. I am satisfied with the waiting time in the optical center.	
4. I am satisfied with the services delivered by the optical center.	
5. I am satisfied with explanation given by the optical center's employees.	
6. I am satisfied with employees of the optical center.	
7. I am satisfied with the procedures to handle complaints, if any, in the center.	
8. I am satisfied with the physical facilities of the optical center.	
9. I am satisfied with the cleanliness of the optical center.	
10. I am satisfied with the location of the optical center.	

Thank You

عزيزي / عزيزتي:

تُجري الباحثة، والملتحقة حالياً ببرنامج الماجستير في إدارة الجودة في الجامعة العربية الأمريكية / فرع رام الله، دراسةً بعنوان "**استخدام نموذج (SERVQUAL) لتقييم جودة الخدمات في مراكز البصريات في فلسطين**" وذلك كأحد متطلبات الحصول على درجة الماجستير.

لقد تم تصميم هذه الاستبانة لجمع البيانات اللازمة. إنَّ المعلومات التي تقدمها سوف تساعد الباحثة في فهمٍ أفضل لجودة الخدمات التي تقدمها مراكز البصريات وأثر هذه الجودة على رضا العملاء. ونظراً لأنك الشخص الذي يمكنه تقديم صورة صحيحة في هذا الصدد، أرجو منك الإجابة على أسئلة الاستبانة بصراحة، علماً بأن تعبئة الاستبانة لا تستغرق أكثر من 5 دقائق تقريباً.

سيتم الاحتفاظ بالردود بسرية تامة. وسيتمكن استخدام البيانات لأغراض البحث العلمي.

شكراً جزيلاً. أقدر كثيراً مساعدتك في تعزيز هذا المسعى البحثي.

الباحثة

ربا الخليل

القسم الأول: الخصائص الاجتماعية والاقتصادية

يرجى وضع دائرة حول رقم الإجابة المناسبة لك فيما يتعلق بالبنود الآتية:

1. **الجنس:**
   1. ذكر.
   2. أنثى.
2. **العمر:**
   1. 20 سنة أو أقل.
   2. 21–30 سنة.
   3. 31–40 سنة.
   4. 41–50 سنة.
   5. أكثر من 50 سنة.
3. **مكان الإقامة:**
   1. مدينة.
   2. قرية.
   3. مخيم.
   4. بلدة.
   5. غير ذلك. حدد:_____
4. **أعلى مؤهل علمي:**
   1. غير متعلم.
   2. تعليم ابتدائي أو ثانوي.
   3. تدريب مهني / تقني.
   4. دبلوم.
   5. بكالوريوس.
   6. ماجستير.
   7. دكتوراة.
5. **حالة التوظيف:**
   1. أعمل.
   2. لا أعمل.
6. **معدل الدخل الأسري:**
   1. متدنٍ.
   2. متوسط.
   3. مرتفع.
7. **حالة التأمين الصحي:**
   1. لديَّ تأمين صحي.
   2. ليس لديَّ تأمين صحي.
   3. التأمين الصحي قيد الإصدار.

القسم الثاني: جودة الخدمات		
يرجى تحديد درجة موافقتك أو عدم موافقتك على كل عبارة من العبارات التالية باستخدام المقياس المبين أدناه، ووضع الرقم المناسب في المربع أمام كل منها:		
غير موافق بشدة (1) **غير موافق (2)** **محايد (3)** **موافق (4)** **موافق بشدة (5)**		
العبارة	**الجودة المتوقعة**	**الجودة الفعلية**
البعد الأول: الملموسية		
1. يحتوي المركز على أحدث الأجهزة والمعدات.		
2. المظهر العام للمركز جذاب.		
3. موظفو المركز يرتدون ملابس جيدة ويبدون أنيقين.		
4. تتوافق الأجهزة والمعدات في المركز مع نوع الخدمات المقدمة.		
البعد الثاني: الموثوقية		
5. عندما يعد المركز بعمل شيء ما، فإنه يقوم بذلك.		
6. عندما أواجه أي مشكلة، فإن موظف المركز يكون متعاطفاً ومطمئناً.		
7. يقدم المركز خدماته بشكل صحيح من المرة الأولى.		
8. يقدم المركز خدماته في الوقت المحدد.		
9. يحتفظ المركز بسجلات الزبائن وملفاتهم بدقة.		
البعد الثالث: الاستجابة		
10. يقوم المركز بإعلام زبائنه بالضبط عن موعد تقديم الخدمات لهم.		
11. أتلقى خدمة سريعة من موظفي المركز.		
12. موظفو المركز مستعدون دائماً لمساعدة الزبائن.		

القسم الثاني: جودة الخدمات		
يرجى تحديد درجة موافقتك أو عدم موافقتك على كل عبارة من العبارات التالية باستخدام المقياس المبين أدناه، ووضع الرقم المناسب في المربع أمام كل منها:		
غير موافق بشدة (1) **غير موافق (2)** **محايد (3)** **موافق (4)** **موافق بشدة (5)**		
العبارة	**الجودة المتوقعة**	**الجودة الفعلية**
13. يستجيب موظفو المركز لطلبات الزبائن على الفور.		
البعد الرابع: الثقة		
14. يمكنني الوثوق بموظفي المركز.		
15. أشعر بالأمان في معاملاتي مع موظفي المركز.		
16. موظفو المركز مهذبون.		
17. يمتلك موظفو المركز المعرفة التامة للإجابة على أسئلة واستفسارات الزبائن.		
البعد الخامس: التعاطف		
18. يمنحني المركز الاهتمام الفردي.		
19. يمنحني موظفو المركز الاهتمام الشخصي.		
20. يعرف موظفو المركز ما هي احتياجاتي.		
21. يضع المركز مصالح الزبائن في سلّم أولوياته.		
22. لدى المركز ساعات عمل مريحة للزبائن.		

القسم الثالث: رضا الزبائن	
يرجى تحديد درجة موافقتك أو عدم موافقتك على كل عبارة من العبارات التالية باستخدام المقياس المبين أدناه، ووضع الرقم المناسب في المربع أمام كل منها:	
غير موافق بشدة (1) **غير موافق (2)** **محايد (3)** **موافق (4)** **موافق بشدة (5)**	
العبارة	**مستوى الرضا**
1. أنا راضٍ عن تكلفة خدمات المركز.	
2. أنا راضٍ عن الشعور بالرفاهية في المركز.	
3. أنا راضٍ عن وقت الانتظار في المركز.	
4. أنا راضٍ عن الخدمات التي يقدمها المركز.	
5. أنا راضٍ عن الشرح الذي يقدمه موظفو المركز عن منتجاتهم وخدماتهم المختلفة.	
6. أنا راضٍ عن أداء موظفي المركز.	
7. أنا راضٍ عن آلية معالجة الشكاوى في المركز في حال حدوثها.	
8. أنا راضٍ عن الأجهزة والمعدات المستخدمة في المركز.	
9. أنا راضٍ عن مستوى النظافة في المركز.	
10. أنا راضٍ عن موقع المركز.	

شكراً جزيلاً

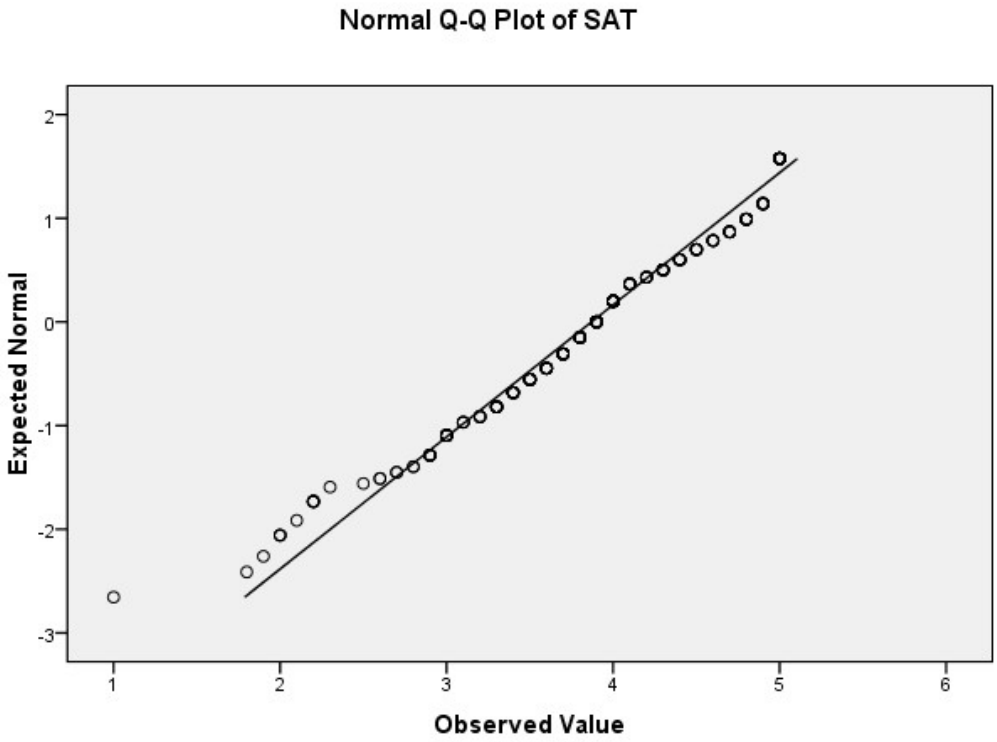
APPENDIX B

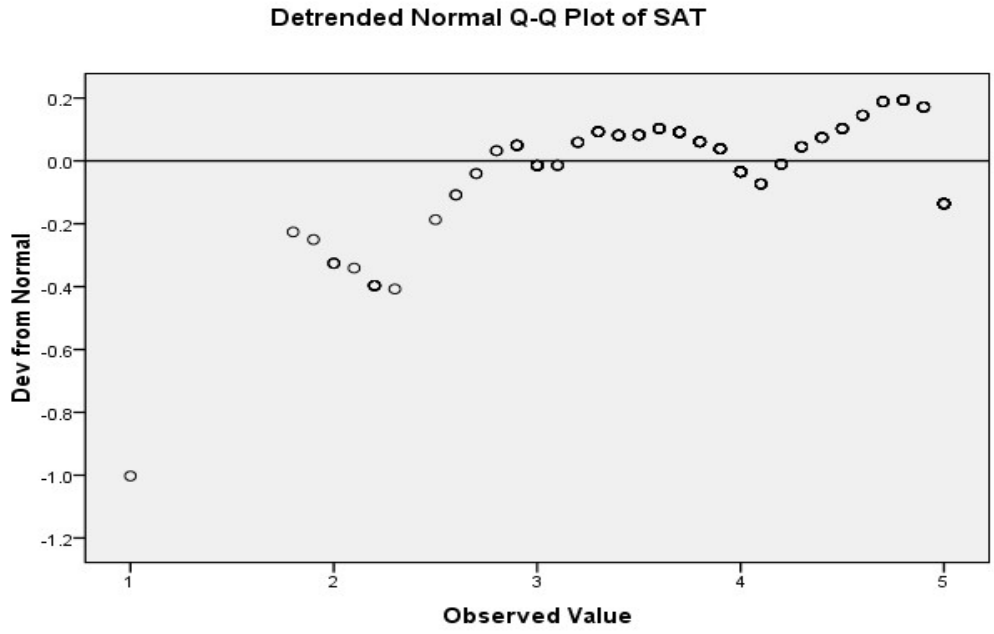
LIST OF RESEARCH INSTRUMENT JUDGES

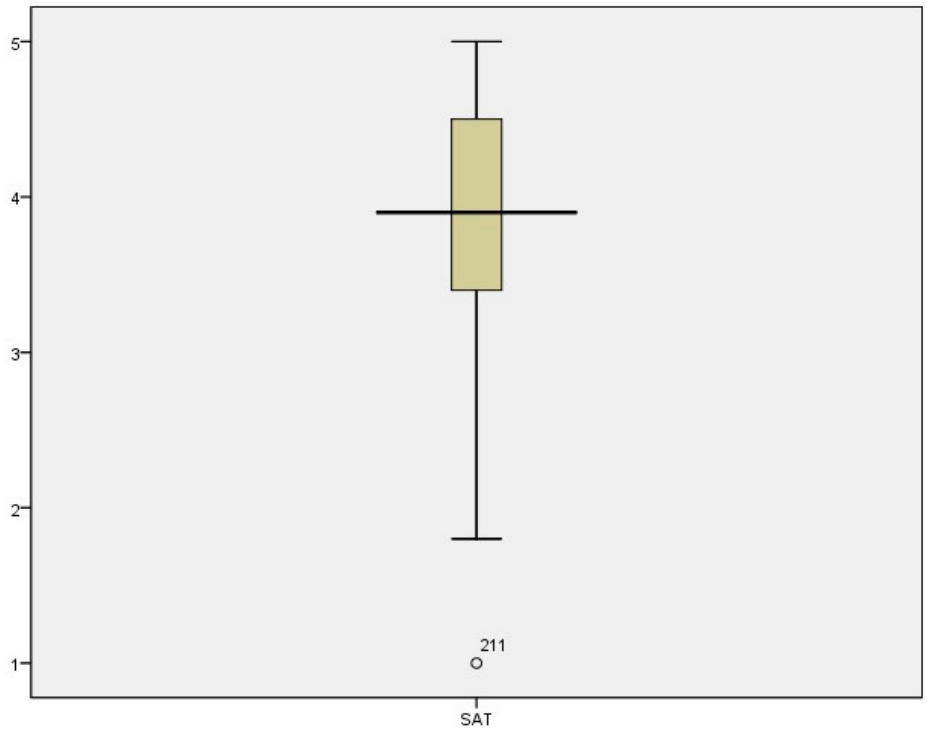
Name	Position
1. Dr. Ashraf Almimi	• Assistant Professor, Arab American University • Middle East Regional Director and Director Consultant at Process Management International
2. Dr. Ayham Jaaron	• Associate Professor in Industrial Engineering, An-Najah National University

APPENDIX C

NORMALITY TEST PLOTS



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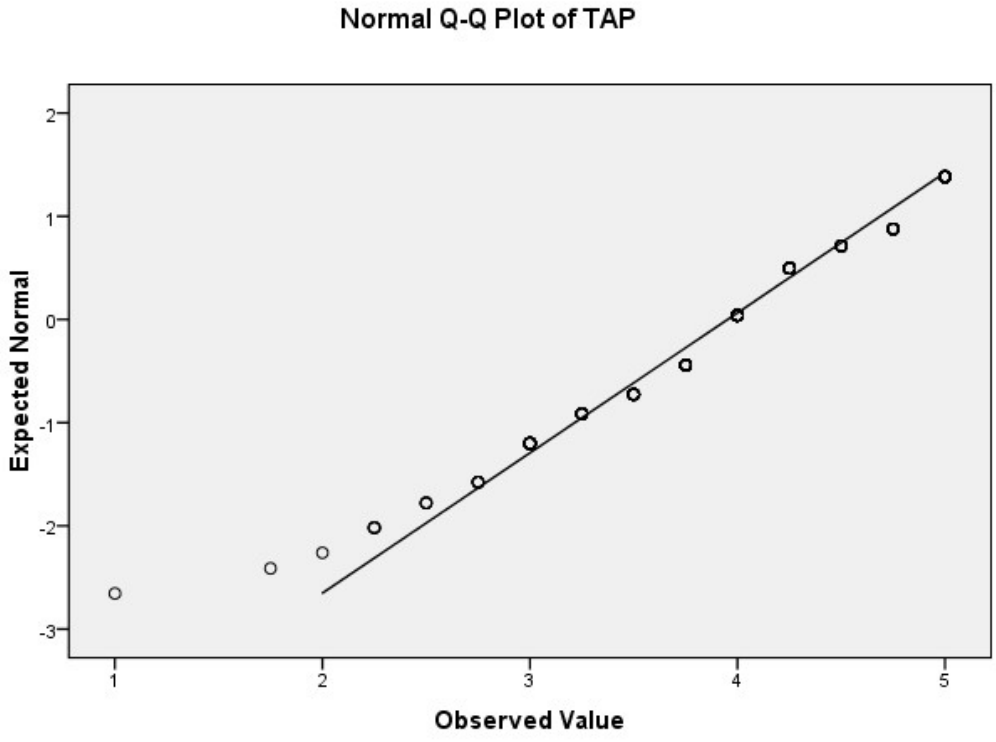
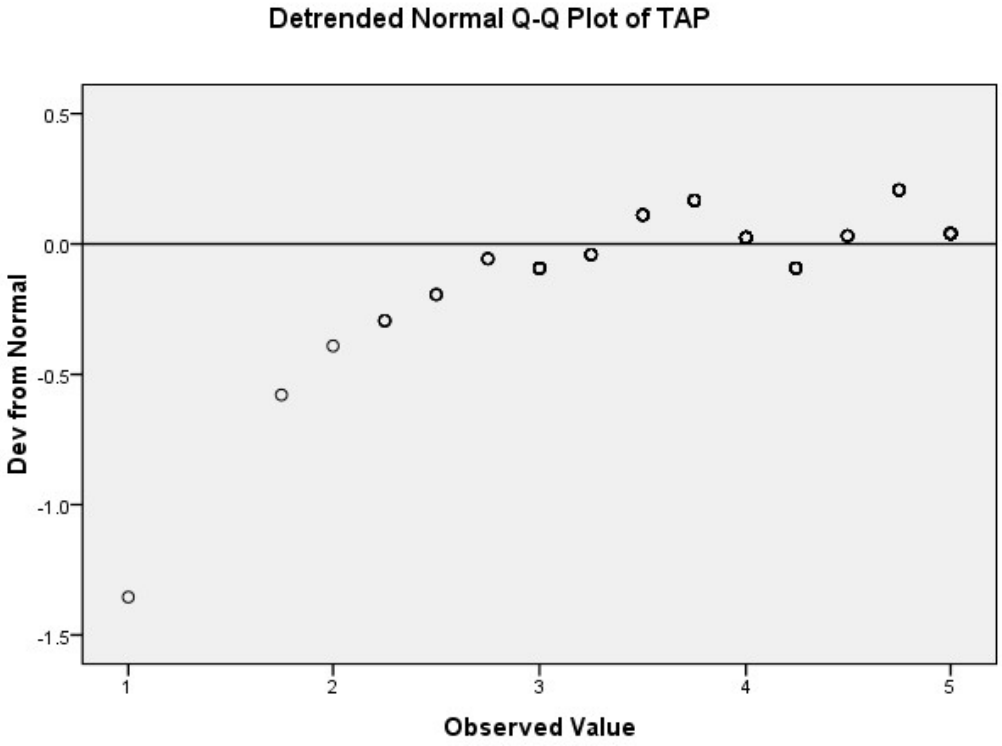
4
3
2
1
211
SAT


Normal Q-Q Plot of TAP
Expected Normal
2
1
0
-1
-2
-3
1
2
3
4
5
Observed Value


Detrended Normal Q-Q Plot of TAP
Dev from Normal
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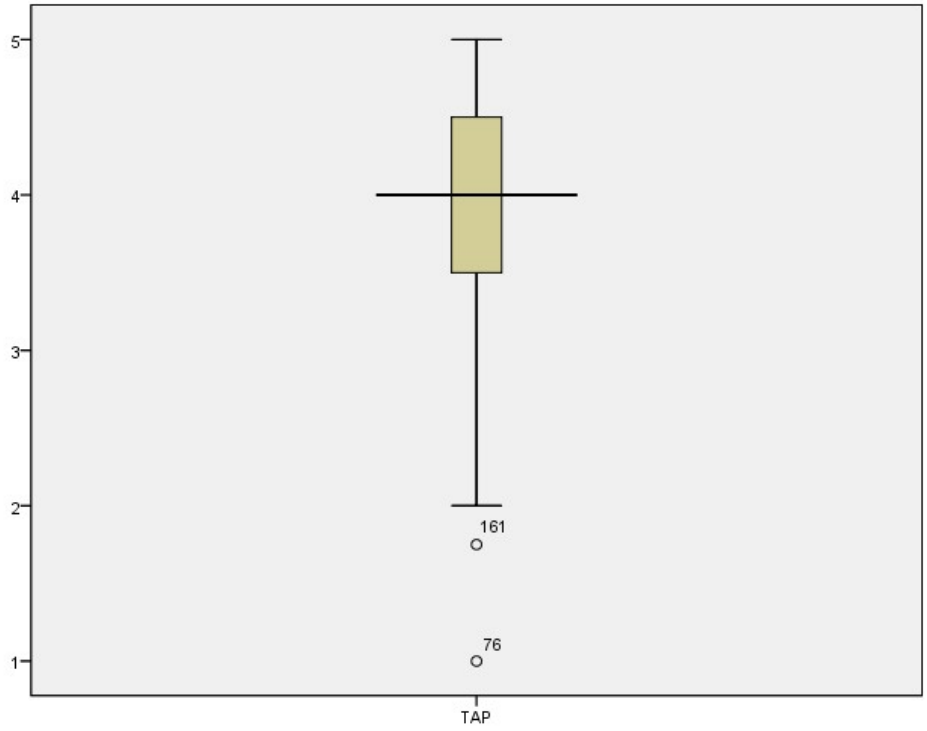
0.0
-0.5
-1.0
-1.5
1
2
3
4
5
Observed Value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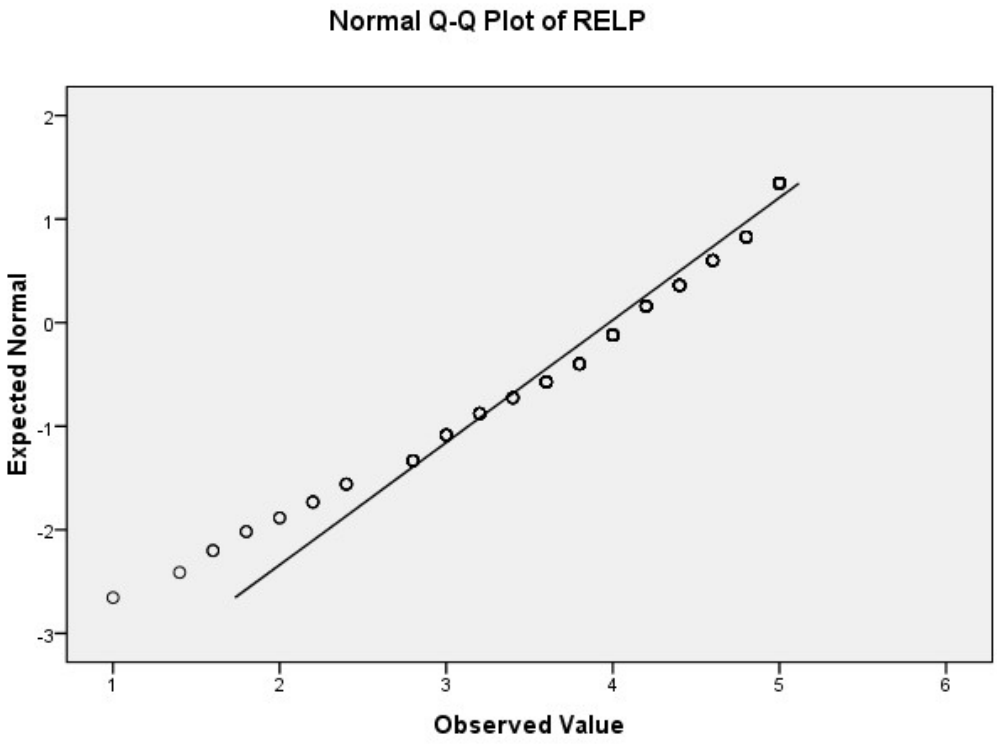
4
3
2
1
161
76
TAP


Normal Q-Q Plot of RELP
Expected Normal
Observed Value
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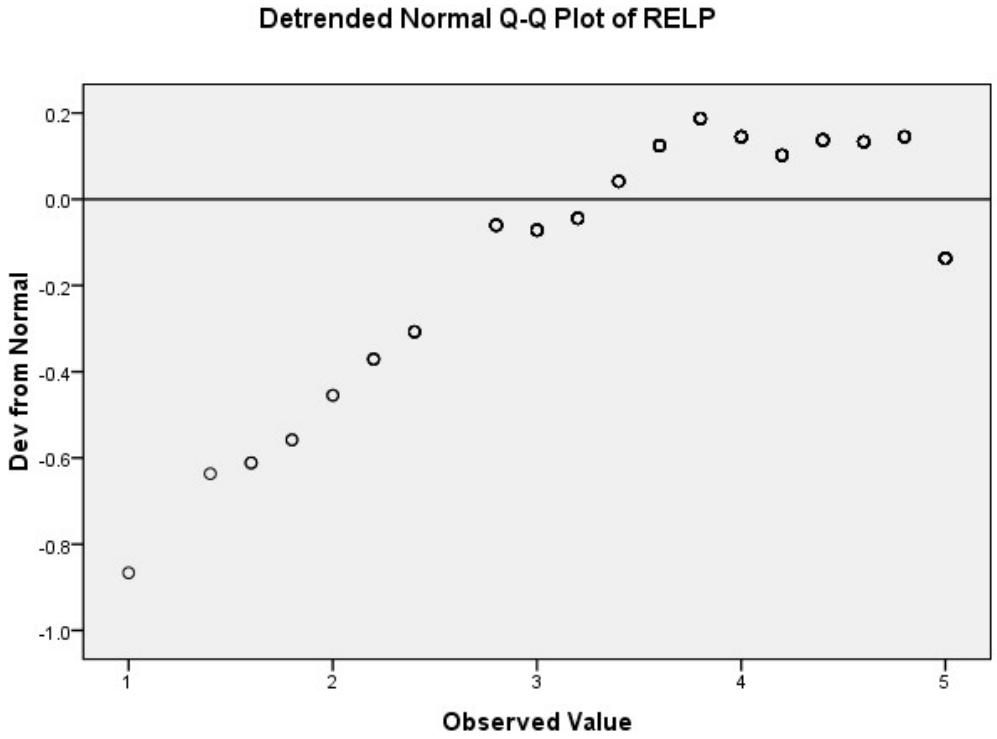
0
-1
-2
-3
1
2
3
4
5
6


Detrended Normal Q-Q Plot of RELP
Dev from Normal
Observed Value
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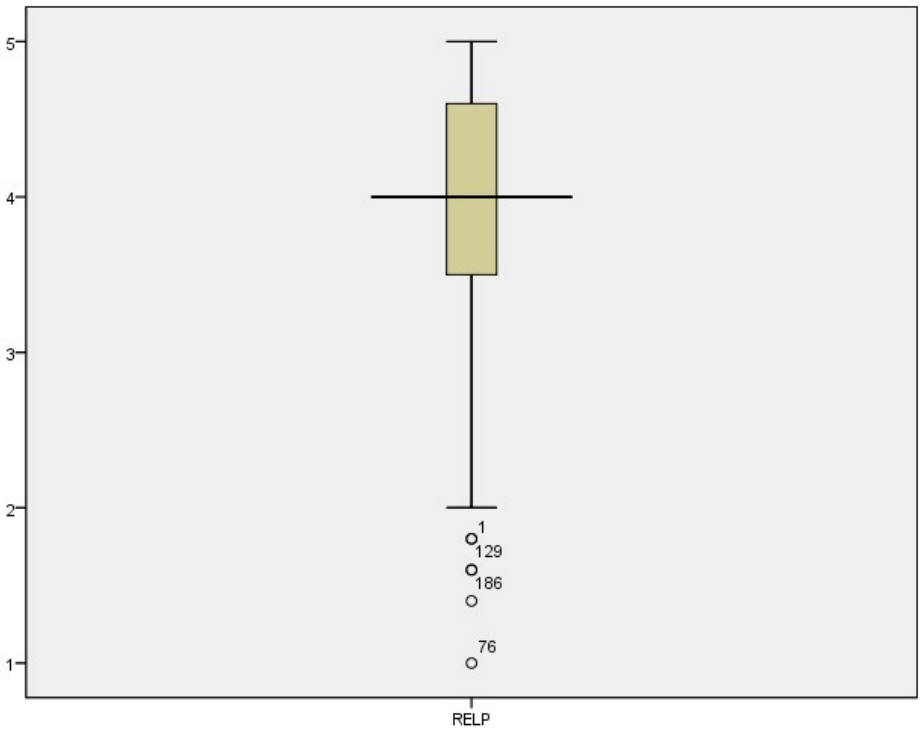
1
2
3
4
5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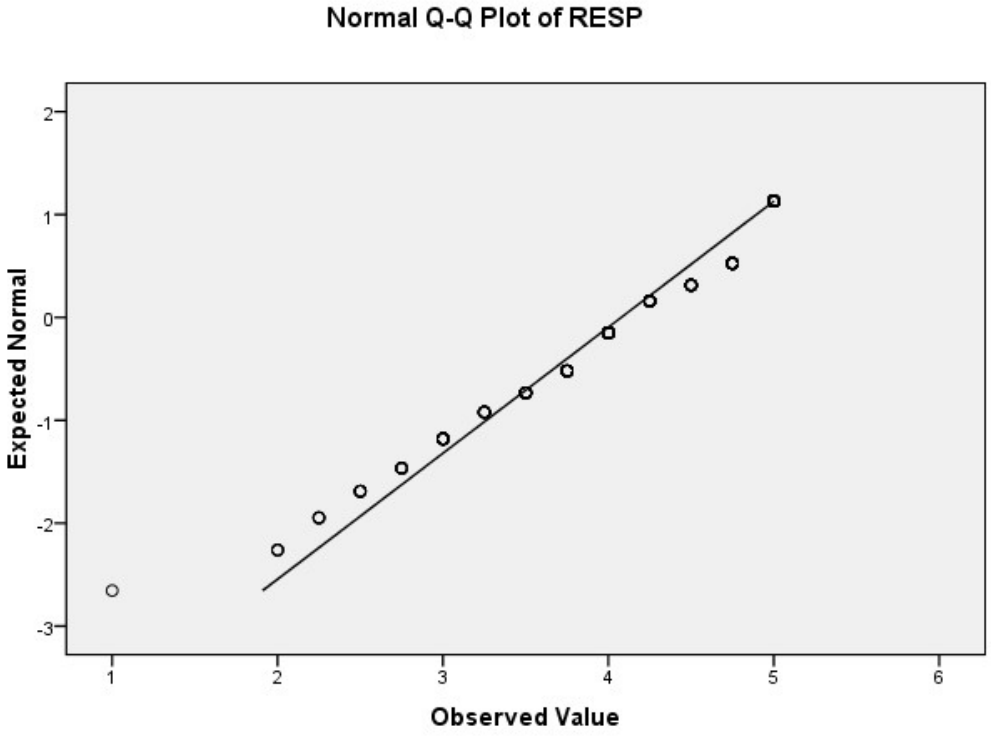
4
3
2
1
1
129
186
76
RELP


Normal Q-Q Plot of RESP
Expected Normal
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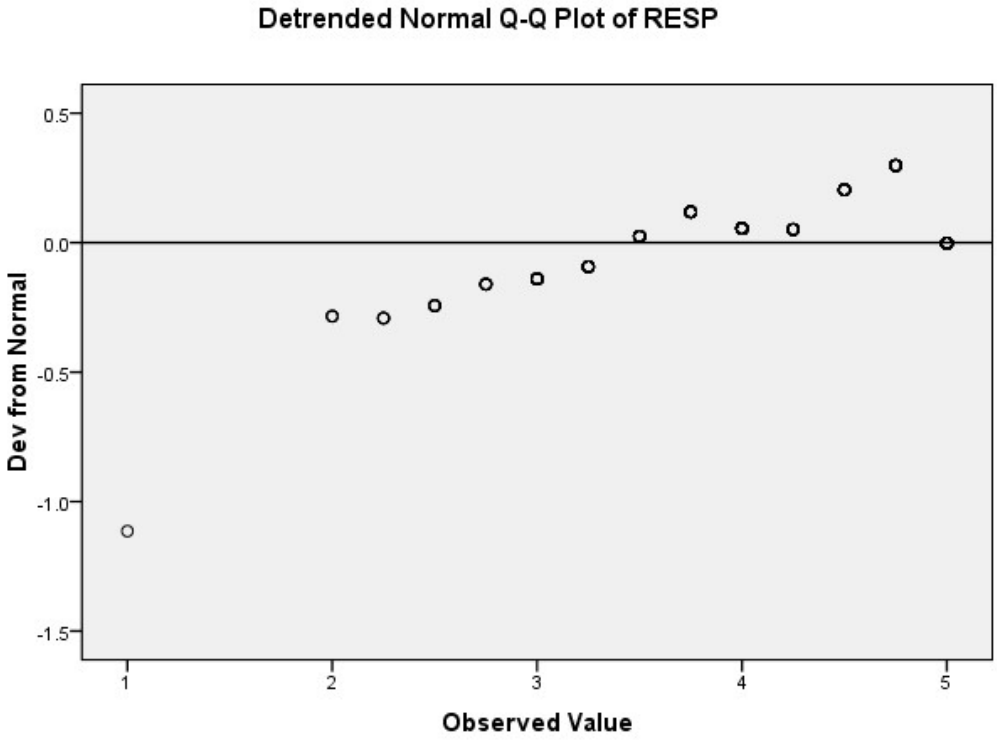
1
0
-1
-2
-3
1
2
3
4
5
6
Observed Value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Dev from Normal
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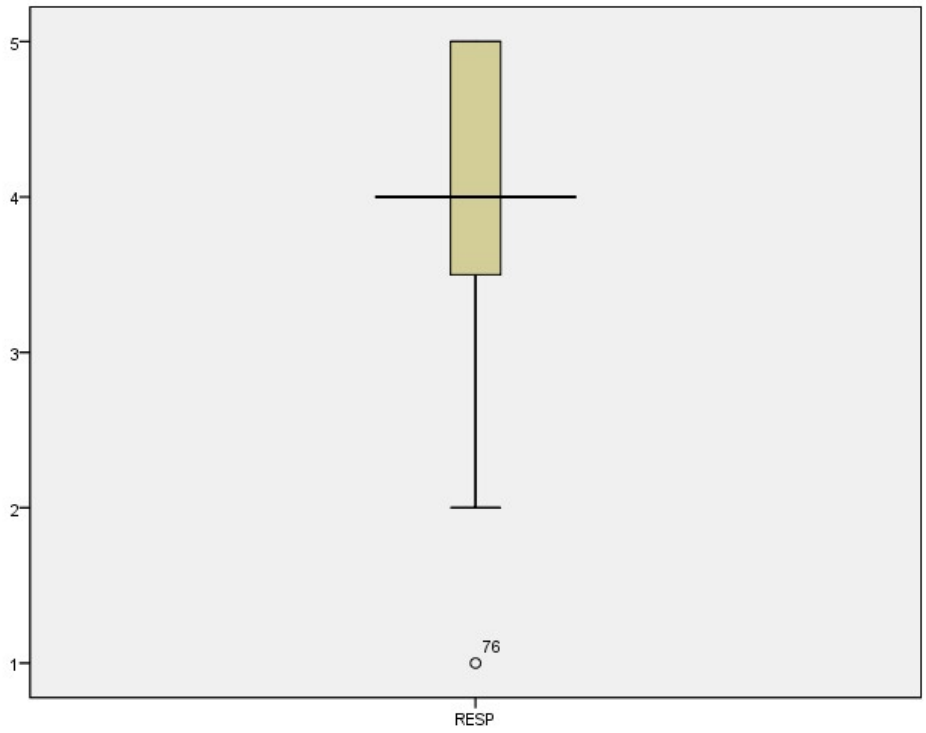
-1.0
-1.5
1
2
3
4
5
Observed Value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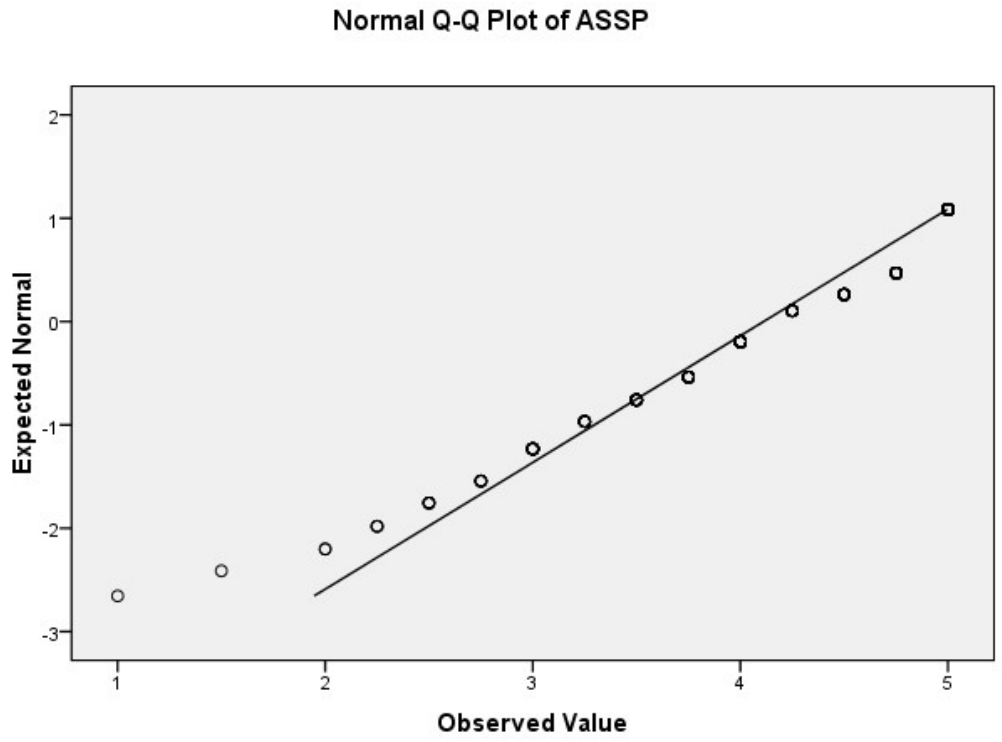
3
2
1
76
RESP


Normal Q-Q Plot of ASSP
Expected Normal
Observed Value
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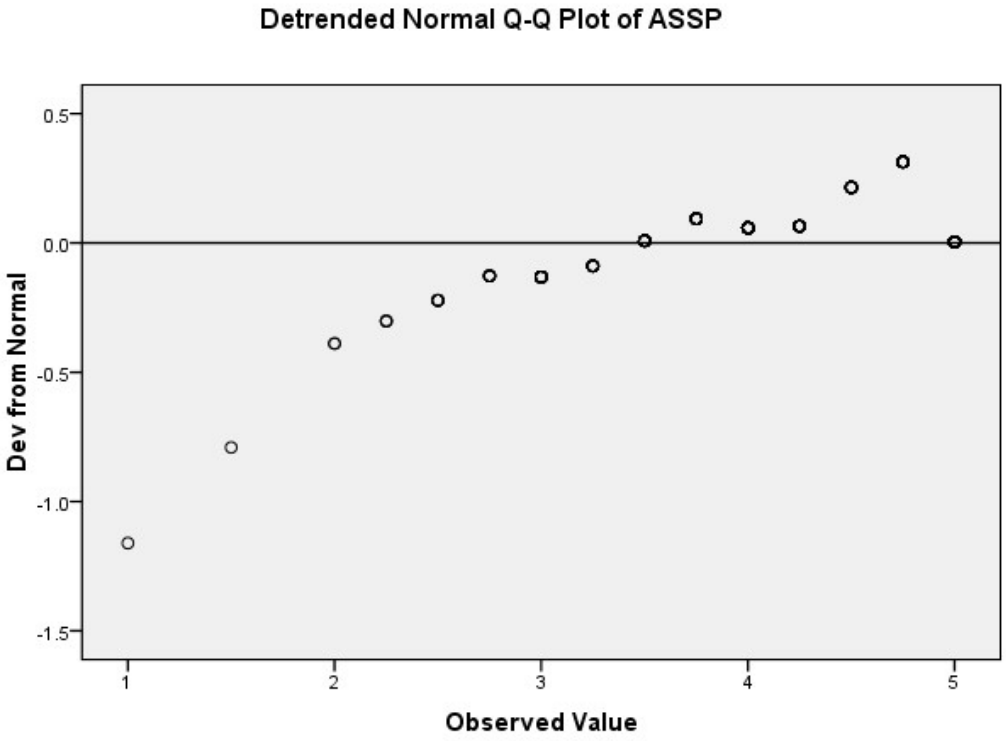
-1
-2
-3
1
2
3
4
5


Detrended Normal Q-Q Plot of ASSP
Dev from Normal
Observed Value
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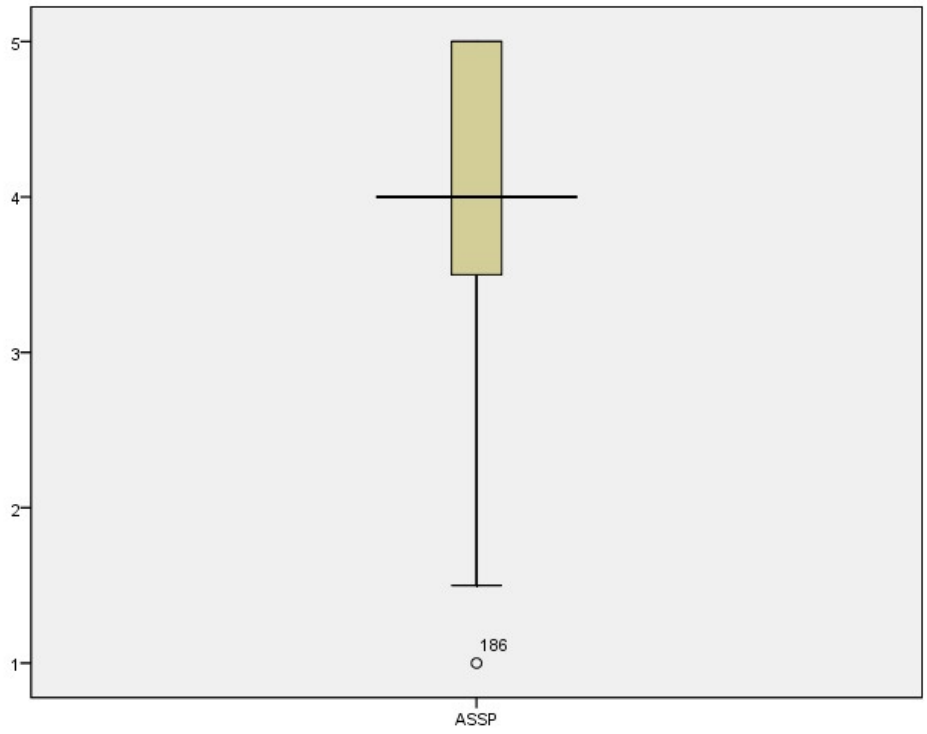
-0.5
-1.0
-1.5
1
2
3
4
5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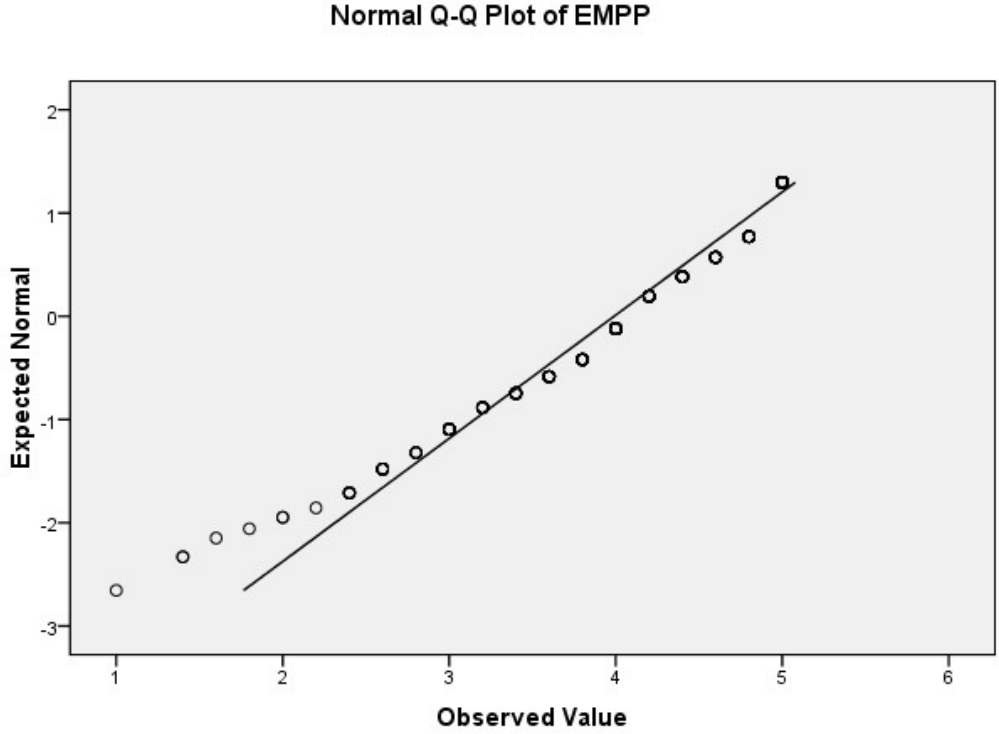
3
2
1
186
ASSP


Normal Q-Q Plot of EMPP
Expected Normal
Observed Value
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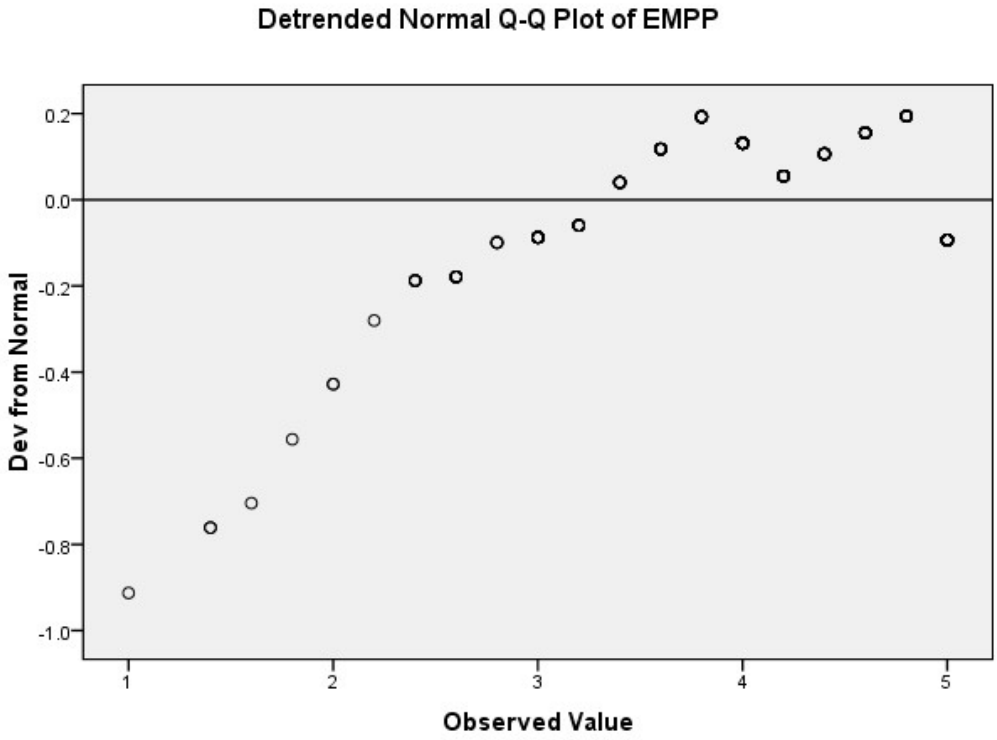
-2
-3
1
2
3
4
5
6


Detrended Normal Q-Q Plot of EMPP
Dev from Normal
0.2
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-0.6
-0.8
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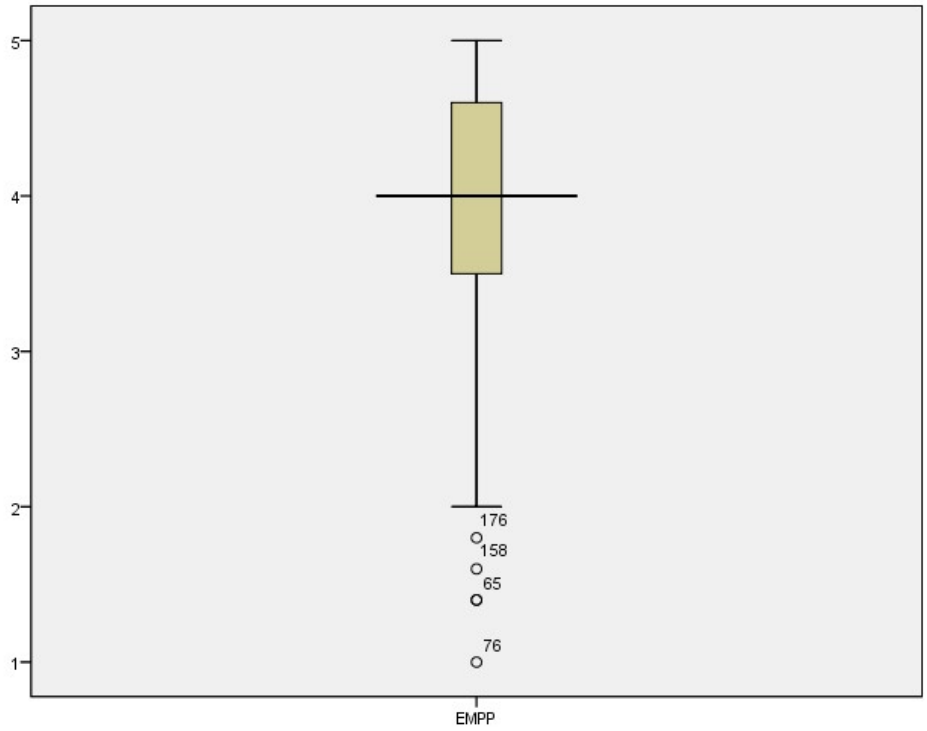
1
2
3
4
5
Observed Value


5
4
3
2
1
176
158
65
76
EMPP

الملخص

تهدف هذه الدراسة إلى استخدام نموذج (SERVQUAL) لتقييم جودة خدمات المراكز البصرية العاملة في الضفة الغربية – فلسطين وفحص أثر ذلك على رضا الزبائن. تم اعتماد منهج البحث الكمي من خلال اختبار الفرضيات. وتم جمع البيانات الأولية، باستخدام أسلوب العينة العشوائية، من 251 زبوناً من زبائن المراكز البصرية في الضفة الغربية – فلسطين من خلال الاستبانة.

الاستبانة التي تم تطويرها بناءً على نموذج (SERVQUAL) تتألف من ثلاثة أجزاء. يهدف الجزء الأول إلى جمع بيانات عن الخصائص الاجتماعية والاقتصادية لأفراد العينة. ويهدف الجزء الثاني إلى جمع بيانات حول مستوى أبعاد جودة الخدمات باستخدام 22 فقرة هي فقرات نموذج (SERVQUAL). وأخيراً، يهدف الجزء الثالث، والذي يتضمن 11 فقرة، إلى جمع بيانات حول المستوى العام لرضا الزبائن. تم استخدام مقياس ليكرت الخماسي في الجزأين الثاني والثالث من الاستبانة. وتم تحليل البيانات باستخدام كل من الأساليب الإحصائية الوصفية والاستدلالية بما في ذلك القيم الدنيا، والقيم القصوى، والمتوسطات الحسابية، والانحرافات المعيارية، واختبار (Mann–Whitney)، واختبار (Kruskal–Wallis)، والانحدار المتعدد، واختبار (Wilcoxon). وتم استخدام برنامج الرزم الإحصائية في العلوم الاجتماعية في تحليل البيانات.

وتشير النتائج الرئيسية للدراسة إلى أن نموذج (SERVQUAL) جيد لتقييم جودة خدمات المراكز البصرية العاملة في الضفة الغربية – فلسطين من خلال تحديد الفجوات في جودة الخدمات التي تقدمها. بالإضافة إلى ذلك، تؤكد النتائج أن الزبائن لديهم توقعات أعلى من التصورات في جميع الأبعاد الخمسة لنموذج(SERVQUAL). وعلاوةً على ذلك، تظهر النتائج أن الزبائن راضون للغاية بمستوى رضا تقريبي يبلغ 77.4%. وتظهر النتائج أيضاً أن تصورات الزبائن حول مستوى جودة الخدمات تختلف تبعاً للعمر، والتعليم، والدخل، في حين أن الجنس، ومكان الإقامة، وحالة التوظيف، وحالة التأمين ليس لها تأثير ذو دلالة إحصائية. بالإضافة إلى ذلك، هناك اختلاف ذو دلالة إحصائية في توقعات الزبائن حول مستوى جودة الخدمات تُعزى إلى مكان الإقامة والمستوى التعليمي، والوضع الوظيفي، ومستوى الدخل، في حين أن الجنس، والعمر، وحالة التأمين ليس لها تأثير ذو دلالة إحصائية. وأخيراً، يُظهر نموذج

الانحدار الخطي المتعدد الذي تم بناؤه، والذي يتمتع بمعامل تحديد بنسبة 70%، أن الجوانب الملموسة، والموثوقية، والثقة، والتعاطف لها تأثيرات ذات دلالة إحصائية على رضا زبائن مراكز البصريات في الضفة الغربية – فلسطين.