Service quality of a pharmaceutical wholesaler in South Africa

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ABSTRACT

The study investigates the measurement of service quality at a pharmaceutical wholesaler in South Africa. A number of pharmaceutical wholesalers distribute medical supplies throughout South Africa in a very regulated and competitive market where high service quality levels are expected. In this undifferentiated market, service quality can have a significant impact on the competitiveness a pharmaceutical wholesaler. As a result, a study with the primary objective to determine the current service quality levels of a large pharmaceutical wholesaler was therefore needed. The literature study compiled an industry profile of the South African Pharmaceutical market, analysed service quality and then proposed an adapted SERVQUAL model to measure the service quality. A review of the literature also highlighted the general structure of the pharmaceutical industry and the regulatory framework in the supply of pharmaceutical products. The literature also focuses specifically on the role and function of the pharmaceutical wholesaler in the supply chain. Data was collected from clients of a pharmaceutical wholesaler using an electronic platform (GoogleForms) to record service expectations and perceptions on a 7-point Likert scale. Some 4468 industry-adapted SERVQUAL survey questionnaires were emailed to clients of which 385 were completed and returned (signifying an 8.6% response rate). The analysed data returned a Cronbach alpha coefficient larger than 0.80 and therefore deemed reliable. Gap 5 of the SERVQUAL model was specifically scrutinised. The results show that in all five dimensions, expectations exceeded perceived service. The service dimension *Assurance* showed the biggest gap while *Tangibility* had the smallest gap. Further analysis using exploratory factor analysis identified three underlying service quality variables, namely *Positive employee actions, Business process management* and *Marketing channels*. These factors explained a favourable cumulative variance of 67.7%. The study also proposes a model to measure service quality in the pharmaceutical wholesale industry.

Keywords: Service quality, pharmaceutical wholesaler, SERVQUAL model, customer satisfaction, loyalty, antecedents

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CHAPTER 1: NATURE AND SCOPE OF THE STUDY

1.1 INTRODUCTION

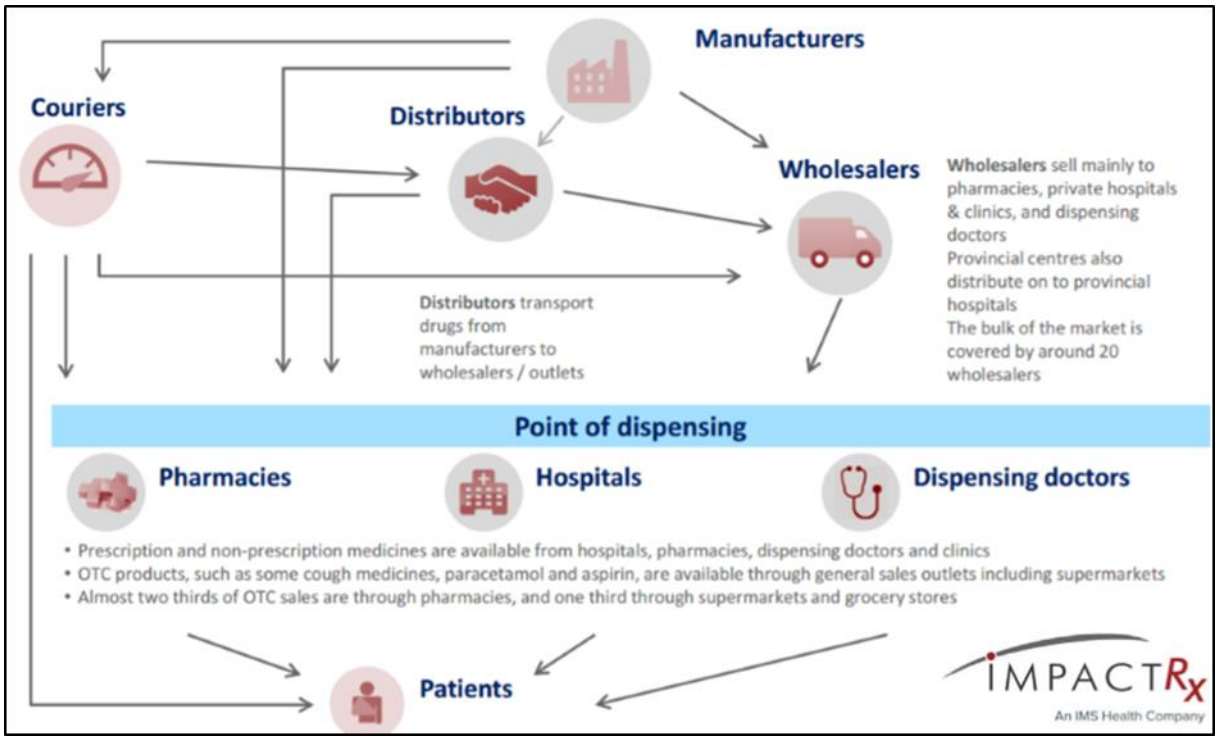
The South African pharmaceutical wholesaler forms part of the supply chain of pharmaceutical products. Its customers are all healthcare-providing institutions focusing on public and private healthcare providers. Some pharmaceutical wholesalers distribute medical supplies throughout South Africa, and similarly to any other business, they need to remain competitive; here typical strategic competitive thrusts like customer service and satisfaction are employed to compete actively in the health market (Antonie *et al.*, 2018). Pharmaceutical wholesalers and its customers operate in a very regulated and competitive market where a high quality of service is expected; making the interaction and service received from the wholesaler all the more critical (Bangalee & Suleman, 2015:522:). The quality of service received from the wholesaler could strongly affect the service a patient receives from the wholesaler's customer and as such the wholesaler can directly affect the business performance, profitability, customer loyalty, and customer satisfaction of its customers (Mehralian *et al.*, 2016:973).

It is common practice that most of a wholesaler's customers have accounts with some pharmaceutical wholesalers to prevent shortages and to compare product prices. This business practice makes the principle of being the supplier of choice and resultant customer loyalty all the more difficult to achieve for pharmaceutical wholesalers (Ball, 2011). The customers expect to receive pharmaceutical quality products at a competitive price on time. Any errors from the wholesaler are unacceptable because of the direct impact it can have on the service quality provided by the health service providers to their customers and also on their patients' health and safety. Furthermore, the severe competition in the wholesale health industry and the resultant low-price margins of medicine, most pharmacies and doctors are forced to keep smaller quantities of stock on hand and ordering more frequently, thus making quick deliveries a highly competitive advantage for pharmaceutical wholesalers.

According to the South African Pharmacy Council (2018) there are 216 pharmaceutical wholesalers registered in South Africa. Pharmaceutical wholesalers are in intense competition with each other, trying to grow their market share by taking business from their rivals, thus making service satisfaction of customers

critical for pharmaceutical wholesalers (Mehralian *et al.*, 2016:973). Figure 1.1 is a diagram from ImpactRX that shows how fragmented and complex the pharmaceutical supply chain is and shows where the pharmaceutical wholesaler and its customers fit in the supply chain of pharmaceutical products.

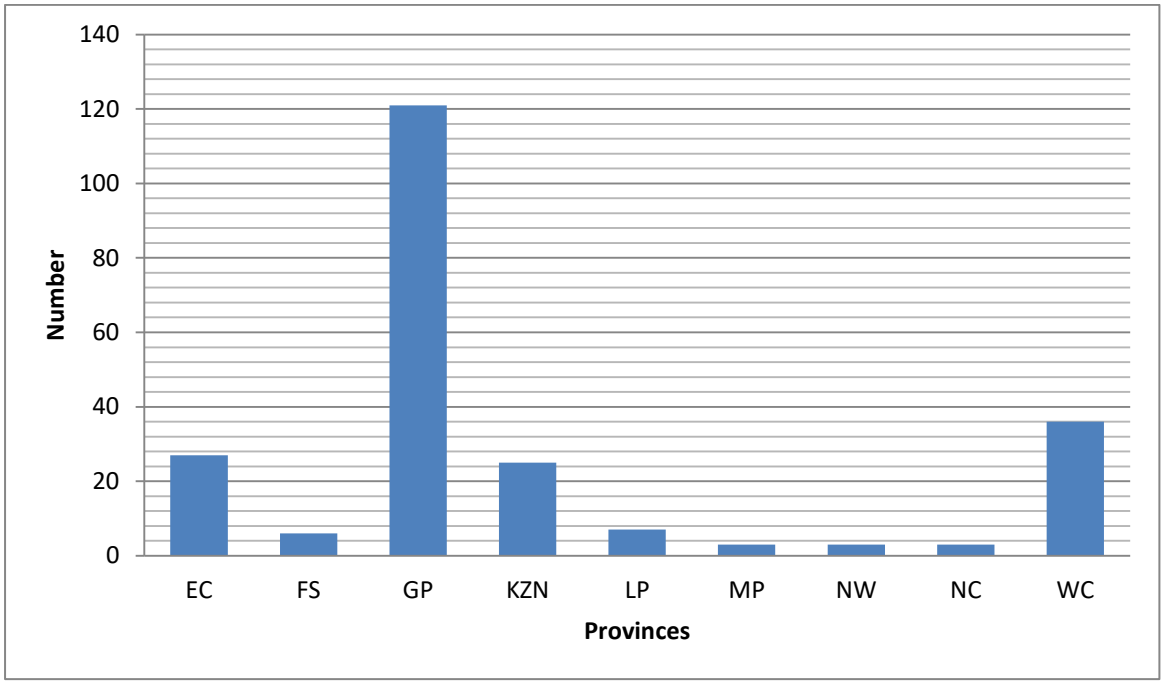
Figure 1.1: The pharmaceutical supply chain



Source: ImpactRx (2017)

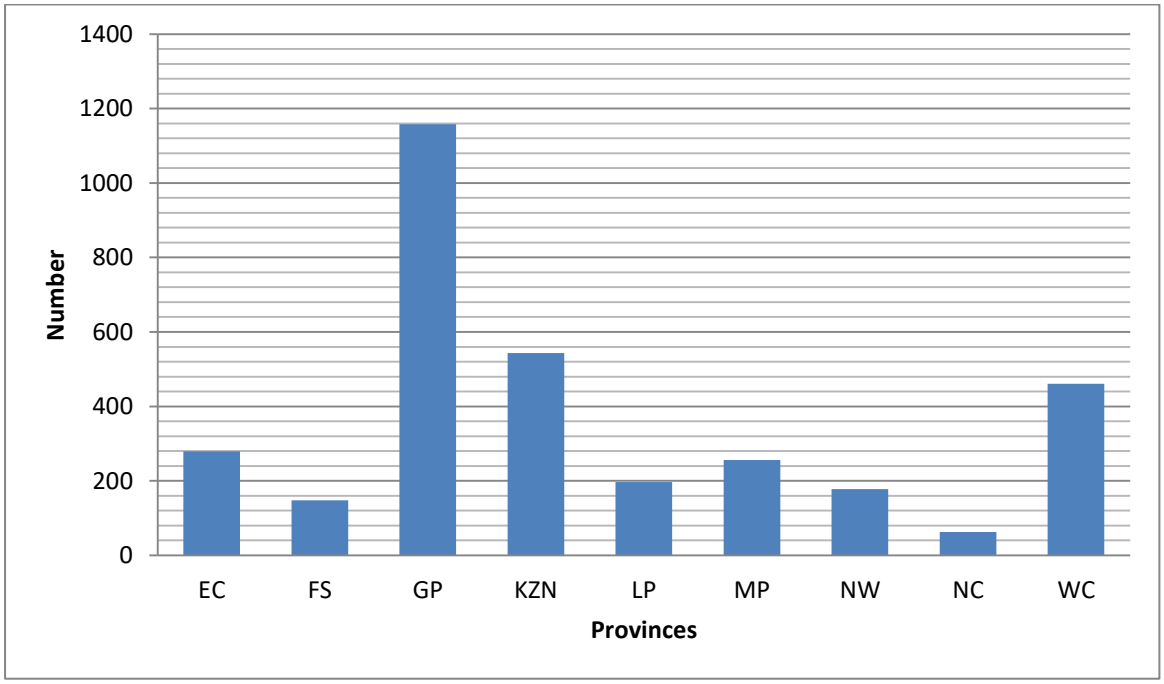
Figure 1.2 illustrates the distribution of pharmaceutical wholesalers in South Africa and figure 1.3 shows the distribution of pharmacies, which are the main customers of pharmaceutical wholesalers. The number of wholesalers per province is about the number of pharmacies and population per province. Pharmaceutical wholesalers compete with service quality and reducing the time-to-market period of pharmaceutical products. The biggest number of pharmaceutical wholesalers is found in Gauteng (120), followed by the Western Cape (33) pharmaceutical wholesalers. The Eastern Cape has the third most pharmaceutical wholesalers (23).

Figure 1.2: The number of pharmaceutical wholesalers per province, 2018



Source: South African Pharmacy Council (2018)

Figure 1.3: The number of community pharmacies per province, 2018



Source: South African Pharmacy Council (2018)

According to the Helen Suzman Foundation's report on the supply of pharmaceuticals in South Africa the top 15 pharmaceutical wholesalers in South Africa accounts for over 95% of wholesale turnover (Antonie *et al.*, 2018). These top

pharmaceutical wholesalers all focus on service quality and promote the following service qualities:

- Availability of a wide range of products
- Competitive prices
- Quick, free deliveries
- Professional and high-quality service
- Simple invoicing / financial relationship
- Overall customer relationships

1.2 PROBLEM STATEMENT

Pharmaceutical wholesalers compete with each other by providing the same pharmaceutical products and services mainly to private healthcare institutions, and its customer base can include independent and retail pharmacies, doctors, other wholesalers, hospitals, clinics, veterinary facilities, health shops, homeopaths and export customers.

The current regulations on the price of medicine in South Africa that implies a single exit price entail that pharmaceutical wholesalers can no longer compete or use lower prices as a commercial strategic business advantage. The single exit price on medicine makes it almost impossible for customers to differentiate pharmaceutical wholesalers on the cost of products and customers moved their focus to the overall quality of service received from pharmaceutical wholesalers, for example, delivery times, ordering errors and consistency. This change in customer focus forces the pharmaceutical wholesalers to shift their core focus from buying in bulk, towards get better deals and promote products at lower prices to overall high-quality service to differentiate itself from other pharmaceutical wholesalers. At this moment they can gain a competitive advantage as the marketing literature is in general agreement that superior service quality is a critical success factor where there is intense competition. Service quality's empirical link to customer satisfaction has turned service quality into a core marketing instrument (Niaz *et al.*, 2009:26).

Previous studies indicate that understanding how the customers define service quality and adapting the service rendered to what fulfil the customers' expectations, can have a positive impact on the market share, profit and cost savings of an organisation (Ramamoorthy *et al.*, 2018:834).

In the current economic and competitive environment, it has become more critical for pharmaceutical wholesalers to understand the perceived service provided to its customers to differentiate itself from its competitors.

As service quality can have a significant impact on the financial performance of the pharmaceutical wholesaler, a study is needed to determine the current perceived service quality. It is further a necessity to evaluate the impact of high service quality on customer satisfaction. This study aims to gain knowledge in how customers of the pharmaceutical wholesaler judge service quality and determine what gaps the pharmaceutical wholesaler should address to provide a higher quality service and meet customers' expectations.

1.3 OBJECTIVES

The primary objective of this study is to measure the service quality at a pharmaceutical wholesaler.

The secondary objectives are to:

- Determine the perceived level of customer service the retail customers receive from the pharmaceutical wholesaler
- Determine the perceived level of customer service the retail customers expect from the pharmaceutical wholesaler
- Determine the difference (Gap 5) between the service levels
- Identify possible correlations between the general business and demographic variables and the service gaps
- Determine the factors that influence the quality of service provided by a pharmaceutical wholesaler
- Formulate managerial interventions to improve service levels to customers

These objectives are serviced using data from a survey distributed to a specific pharmaceutical wholesaler's customers. In accordance to the Parasuraman model of customer service (Parasuraman *et al.,* 1985:41; 1988:14) and applied in the health industry by various researchers (Niaz *et al*., 2009:26; Bisschoff & Kadé, 2010; Ramamoorthy *et al.*, 2018:841; Appalayya & Paul, 2018:261) and the perceived quality of service provided by the pharmaceutical wholesaler will then be compared

to what service levels the customers expect to receive from the pharmaceutical wholesaler. The potential positive and negative gaps will later be identified as per “Gap 5” of the SERVQUAL model to address service quality management issues in the company. Possible correlations between business and demographic variables will also be investigated to determine if these correlations influence buying behaviour and service perceptions of the customers.

1.4 RESEARCH METHODOLOGY

The research methodology is discussed in full in Chapter 3.

1.4.1 Literature

The study followed a quantitative approach that consists of a literature review and an empirical investigation.

- **Firstly**, a deductive approach was followed by looking at previous research conducted to examine and explore interests, and problematic issues. The North-West University’s electronic database, articles, Google Scholar and other publications were used to provide a sound theoretical base for this service quality study.
- **Secondly**, the selection of a research design followed. A quantitative research design was chosen based on the success of various other quality service studies aiming to also address similar identified problems and research objectives in this study. Mehralian *et al.* (2016:978) developed a service quality measurement for the services rendered to retail pharmacies from a pharmaceutical wholesaler in Iran. Fatima *et al.* (2017:1198) explained the patients’ views towards private healthcare service providers by measuring hospital service quality and analysing the relative significance of quality measurements in anticipating the patients’ satisfaction and loyalty. Appalayya and Paul (2018:268) conducted a study that identified the most critical factors in hospitals related to service quality that will ensure survival and success in the future (Appalayya & Paul, 2018:269; Fatima *et al.*, 2017:1199; Mehralian *et al.*, 2016:980).
- **Thirdly**, the SERVQUAL model was chosen to measure differences between the perceived service quality and the actual received service quality (also referred to as Gap 5). (Brady & Cronin, 2001:39; Parasuraman *et al*. 1985:44). The model was selected as an analytical tool because:

- The SERVQUAL model measures service quality and can determine the differences in the perceived and expected quality of service.
- The model also classifies the service quality data into the five service quality antecedents (tangibility, reliability, responsiveness, assurance and empathy).
- The model has been widely used in a wide variety of industries and has proven to be valid since inception.
- The model has also been re-validated by Kade and Bisschoff (2010) for use in the South African health industry, more specifically in customer service of ophthalmology measurement.

1.4.2 Questionnaire

The questionnaire used in this study will be based on the SERVQUAL principles, but its questions will be adapted to be more specific for pharmaceutical wholesalers in South Africa. Although this might lower the validity of the questionnaire, the validity of the modified questionnaire and the reliability of the data will be scrutinised statistically.

1.4.3 Study population

The study population consists of all customers of the specific wholesaler. The company's customer list comprises independent and retail pharmacies, doctors, hospitals, clinics and veterinarians; all of them formed part of the study population.

This study targeted the population. No sample was drawn. All the customers on the address list received the adapted and structured SERVQUAL questionnaire via email.

1.4.4 Location of a unit of analysis

The population used consists of the customers of the pharmaceutical wholesaler that distributes pharmaceutical products nationally. The population is thus geographically located all over South Africa.

1.4.5 Accessibility of unit of analysis

Permission was granted at a managerial meeting held by the pharmaceutical wholesaler to gain access to the contact details of all customers of the pharmaceutical wholesaler for research purposes only and that personal information will not be used otherwise.

1.4.6 Suitability of unit of analysis

The study's primary objective was to measure the perceived and expected service quality of a selected pharmaceutical wholesaler in South Africa. Customers of the pharmaceutical wholesaler place orders with the pharmaceutical wholesaler regularly and receive a service from the pharmaceutical wholesaler on a regular basis, making the customers of the pharmaceutical wholesaler the most suitable and appropriate to answer a SERVQUAL questionnaire regarding perceived and expected level of service quality received from the pharmaceutical wholesaler.

1.4.7 Statistical analysis and decision criteria

The data was analysed by the software IBM Statistical Package for Social Sciences software (Version 25). The data and their respective decision-criteria were analysed by several quantitative statistical techniques as shown in table 3.1.

1.4.8 Ethical considerations

This study was evaluated for compliance to the ethical standards, practices and requirements of the North-West University's Ethical Committee (Faculty Economic and Management Sciences). The committee approved the study and classified it as a low-risk study; a study-specific ethics number NWU-00271-18-A4 was issued.

1.5 PROBLEMS ENCOUNTERED

The response rate could have been negatively affected by the fact that the survey was emailed to the account holder and did not necessarily reach the individuals receiving the service from the pharmaceutical wholesaler. The call centre had to follow-up frequently throughout the two weeks of questionnaire distribution, to ensure that all willing customers received the questionnaire.

1.6 DELIMITATIONS AND ASSUMPTIONS

1.6.1 Delimitations (Scope)

This study gave feedback on the quality of service expected from and delivered by the pharmaceutical wholesaler to their customers. Possible other research designs could have been used that would also have yielded handsome information on service quality in the pharmaceutical industry. These alternative possibilities are:

- The study could also have been conducted on one (or more groups selected) of the types of customers by measuring the quality of service, for example,

received by community pharmacies, providing similar data as the chosen unit of analysis. This would have had a shortcoming though of not providing a holistic customer service delivery view of the wholesaler.

- A study could also have been conducted by gathering data from a random combination of customers of pharmaceutical wholesalers in South Africa. Such a study will measure service quality of all wholesalers to their customers and not that of a specific wholesaler. The results will then reflect service quality levels present in the pharmaceutical wholesale environment and will be of value to all wholesalers, and not only a specific one. The shortcoming would be that the generalised approach will not be able to provide accurate managerial information to any particular wholesaler.
- Comparative analysis in both the cases above could have been a third avenue of research. Here the level of service quality delivered to the different groups of customers could be compared to determine if some groups receive better service quality, and if so why? This could render management to deliver a differentiated service quality strategy to serve best each of the four diverse groups of customers a wholesaler has.

Although these alternatives are, in their own right interesting and valuable research avenues, all of them would have, however, changed the primary research question and objectives of the study. Hence the study would then not have given a holistic view on the quality of service provided to all types of customers of the selected pharmaceutical wholesaler anymore if they are included in the study.

1.6.2 Assumptions

The assumptions underlying this study include that:

- This study will apply to the pharmaceutical wholesaler that will be evaluated in this study.
- There will be a relationship between the different variables evaluated in this study.
- The adapted SERVQUAL research instrument is of relevance to the pharmaceutical industry and customers that will be taking part in this study.
- Customers will be able to assess the service offered by the pharmaceutical wholesaler as a whole.

1.7 LAYOUT OF THE STUDY

The study consists of four chapters. These chapters are:

- **Chapter 1** sets the introductory background, problem statement, objectives and research propositions of the study. The primary aim of this study was to measure the service quality at a pharmaceutical wholesaler in South Africa.
- **Chapter 2** provides the background on the pharmaceutical wholesalers' sector in South Africa focusing on perceptions and expectations of customers regarding services received. Attention is given to the definition of service quality and the dimensions of the SERVQUAL model that was used in this study.
- **Chapter 3** sets out the empirical research results and research methodology. The chapter outlines and describes the research design and methods used to gathered the data. The chapter also explains how the data were analysed and presents the results of the empirical research of this study.
- **Chapter 4** is the final chapter of the study. This chapter aims to conclude the study, to formulate recommendations and to postulate possible areas for further research. The study also presents a summary of the findings on the customer service investigation and ultimately a summary to the study.

1.8 SUMMARY

This chapter introduces the study by providing the pharmaceutical wholesale industry, discusses the business environment and its competitive thrusts, formulates the problem statement, set the objectives and then described the research methodology followed. Chapter 1 also outlined the scope of the study and the problems encountered.

Chapter 2 includes the literature used and the research that was done for this study. The SERVQUAL model, that was used to structure the questionnaire for this study, is also explained and researched in Chapter 2.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

The theoretical background and research done on service quality and South Africa's pharmaceutical wholesale industry are discussed in this chapter. The pharmaceutical wholesale sector will be addressed where after the importance of service quality will be illustrated and the SERVQUAL model is explained.

2.2 SOUTH AFRICAN PHARMACEUTICAL WHOLESALE CONTEXT

2.2.1 Features of South African pharmaceutical markets

The South African pharmaceutical sector has been through many changes in the last few decades especially in the regulatory framework and price control of medicine. Van den Heever (2003), fifteen years ago, in support of Bangalee and Suleman, (2015:526), more recently, state that these changes can mainly be attributed to the systemic cost increases in the private healthcare market of SA in the recorded history. The pharmaceutical sector is regulated by the Medical and Related Substances Act 101 of 1965 (MARSA) (SA 1965). The act authorises the South African Health Products Regulatory Agency (SAHPRA) to set up a framework for the registration of medicines, the classification thereof into schedules, and regulates the purchase and sale of medicines by manufacturers, distributors, wholesalers, pharmacists and persons licensed to dispense medicines. MARSA and the General Regulations demarcate a specific supply chain regarding the sale of pharmaceuticals in the private sector. All entities in the supply chain of pharmaceutical products must be licensed with the Department of Health (DoH). The following entities are recognised as part of that supply chain:

- Manufacturers
- Importers
- Distributors
- Wholesalers
- Retailers

Value to pharmaceutical products is added in three distinct levels, namely:

1. The manufacturer level, where the manufacturer's price is added
2. The wholesaler/distributor level, where the logistics fees are added
3. The retailer level, where the dispensing fee is added.

2.2.1.1 Manufacturer level

Manufacturers manufacture medicine and set prices in the private sector in their applications for registration of a medicine. They are subject to ceilings in periodic adjustment of prices set by the Department of Health. The manufacturers can submit applications to temporarily or permanently reduce costs of their medicine. They are also allowed to apply for price increases if required to keep the medicine available on the South African market. Antonie *et al.* (2018) also state that most manufacturers are importers.

2.2.1.2 Wholesaler/distributor level

There are no clear definitions for “distributor” or “wholesaler” provided by MARSA. If one uses the terms’ ordinary meaning, a distributor is defined as an agent of the manufacturer, and a wholesaler is a person who buys in bulk for his or her own account. Manufacturers may either make use of distributors that act as the manufacturer’s agent, and thus deals with either retailers or wholesalers, or through wholesalers who buy in bulk and sells to retailers in smaller quantities.

The South African Health Products Regulatory Agency (SAHPRA) has licenced 216 pharmaceutical wholesalers up to October 2018 and according to Antonie *et al*. (2018), 15 wholesalers account for nearly all pharmaceutical products passing through wholesalers, while the rest are small regional wholesalers. They also state that four distributors account for most pharmaceutical products passing through distributor channels and also indicate that the median logistics fee paid to pharmaceutical wholesalers or distributors is 10.0% of the SEP, with half their observations falling between 7.4% and 12.5%. Section 22H of MARSA states that a pharmaceutical wholesaler may only purchase medicine from the “original manufacturer” or the “primary importer” and may only sell to the retail sector.

2.2.1.3 Retail level

A retail pharmacy or any other business that is allowed to purchase and sell medicine may obtain it in the following ways:

- Directly from a manufacturer
- From a distributor
- From a wholesaler

These options are not all available for every medicine but in all cases, the retail pharmacy will pay the SEP. Independent retail pharmacies may prefer to obtain their medicine from wholesalers other than UPD, CJ Distributors or Transpharm that are each integrated with corporate retail pharmacies such as Clicks, DisChem and MediRite. They may do so to avoid supporting their competitors. The corporate retailers can obtain their medicines from the distributor or wholesaler with which they are integrated, or from independent wholesalers or distributors or directly from manufacturers.

2.2.2 Licensing and the Supply Chain

It is illegal to handle the sale and distribution of any medicines or scheduled substances without a valid licence to do so from the South African Pharmaceutical Council (SAPC, 2018) and SAPHRA (SA, 1965). The governing of licences for all entities that form part of the pharmaceutical supply chain is done by a licencing system implemented by MARSA along with the General Regulations.

2.2.3 Pricing Regulations: Single Exit Price

Consumers in the past often had to pay higher prices on doctors' preferred medicines and services because incentives were given to the doctors and other healthcare professionals by medicinal manufacturers. This increase in medicine prices by manufacturers to be able to cover incentives to doctors and other healthcare professionals together with the country's history of a high percentage of poverty and previously disadvantaged groups led Government and the Department of Health to step in. The Department of Health's vision is to create an accessible, caring and high-quality health system, and their primary focuses are access, equity, efficiency, quality, and sustainability. The Medicines and Related Substances Act (Act 101 of 1965) (SA, 1965) governs the manufacturing, distribution, sales, and marketing of medicines. The Act was amended in 1997 adding sections about the banning of "bonus" stock and the creation of a pricing committee that aimed to enforce a transparent pricing system that includes a *single exit price* (SEP) for medicines. The single exit price came to effect in 2004, and it is the only price at which a manufacturer may sell medicines to any person.

The *Transparent Pricing System* for medicines and substances (GN R1102 of 2005) defines SEP as follows: "single exit price means the price set by the manufacturer or

importer of a medicine or scheduled substance in terms of these Regulations combined with the logistics fee and VAT and is the price of the lowest unit of the medicine or scheduled substance within a pack multiplied by the number of units in the pack". Regulation 5 deals with the calculation of the SEP". The SEP can be broken down into the following three elements based on this definition (Pretorius, 2011):

- **The manufacturer price –** The manufacturer/importer of medicine determined this price. Any changes to this price need to be approved annually for the medicine to be entered on the South African Medicines Pricing Registry Database of Medicine Prices.
- **The logistics fee –** The logistics fee is a fee charged by the distributor/wholesaler. The fee is negotiated between the distributor and the manufacturer. The fee needs to be made public as separate from the core price; it is in no way distinct from the SEP. The logistics fee is combined with the manufacturer price and VAT to reach the SEP.
- **Value Added Tax (VAT)**

  Section 22G (3) (a) of MARSA prescribes that the SEP is the price at which medicine must be sold to all persons other than the State and include 15 percent VAT. All medicine sold in South Africa must have a set SEP as it is a mandatory price control measure that must be given effect to in the Regulations. Section 22G (3) (b) also requires that all persons licensed to sell medicines, may not sell medicine at any other price than the SEP. The SEP is thus established as a fixed price at which the product must be sold at every level of the supply chain.

  Wholesalers and distributors are entitled to the negotiated logistics fee for their services and pharmacists may add an "appropriate" dispensing fee for their services regarding the regulations.

2.2.4 The Logistics fee

When it comes to wholesalers and distributors, the SEP must now be viewed in the calculation of the logistics fee. The SEP now comprises three components which are: the manufacturer's price, the logistics fee, and VAT.

The regulations provide for the determination of a logistics fee in the following way: Subject to regulation 5(2) (g), the logistics fee must be determined by agreement

between the provider of logistical services and the manufacturer or importer. The Minister, on the recommendation of the Pricing Committee, must determine a maximum logistics fee where, in the opinion of the Minister, such a determination is necessary to promote or protect the interests of the public in:

i. Ensuring reasonable access to affordable medicines;
ii. The realisation of the constitutional right of access to healthcare services contemplated in section 27 of the Constitution;
iii. The efficient and effective distribution of medicines and scheduled substances throughout the Republic.

Section 22G (2) (c) of MARSA authorises the Minister on the recommendation of the Pricing Committee to make regulations “on an appropriate fee to be charged by wholesalers or distributors”. This is given effect to by Regulations36 5(2)(f) and 5(2)(g) which make provision for a logistics fee to be charged by distributors or wholesalers.

The “logistics fee” is defined in the regulations as follows: 3.1. "Logistics fee" means the fee, inclusive of VAT, that is payable in respect of logistical services; 3.2. "logistical services" means those services provided by distributors and wholesalers in relation to a medicine or scheduled substance including but not limited to warehousing, inventory or stock control management, order and batch order processing, delivery, batch tracking and tracing, cold chain storage and distribution. According to the regulation, the logistics fee is to be determined in advance (by agreement) and built into the SEP. It is therefore not permissible for a manufacturer to fix different logistics fees for different wholesalers and distributors. If a manufacturer uses more than one distributor or wholesaler, services must be provided by the logistics fee published in respect of that year. If wholesalers and distributors who were not a party to the original agreement are subsequently used to market the medicine, they must agree to do so on the basis of the existing logistics fee.

2.2.5 Pharmaceutical wholesaler’s functions in South Africa

Pharmaceutical wholesalers’ function in South Africa is to provide logistical services that the proposed amendment stipulates to be the following:

- receiving of medicines or scheduled substances

- warehousing of medicines or scheduled substances
- proper inventory control and rotation
- taking orders from end dispensers
- delivery of orders to end dispensers
- provision of emergency deliveries to end dispensers where required
- proper record keeping
- batch tracking and tracing
- ability to maintain cold chain storage and distribution where necessary
- returning products to manufacturers when needed
- having and operating a debtors' control system which conforms to accepted accounting norms

These logistical services may only be provided by logistics service providers who, in turn, must be licensed to provide such services regarding section 22C of Medicines and Related Substances Act (MARSA). These regulations would affect the profitability of the pharmaceutical industry, as operating costs within the industry would be difficult to recoup, due to limits set on the prices of products sold.

Before the implementation of SEP, wholesalers could add the logistics fee to their selling price (Bangalee & Suleman, 2015:528). Currently, the logistics fee, which covers the distribution cost of pharmaceuticals, is negotiated privately between the manufacturer and the wholesaler. The logistics fee generally ranges between 10% and 15% of the single exit price (Ball, 2011). Pharmaceutical wholesalers face cost control in that a single flat professional fee or logistic fee is negotiated with each supplier causing margins in the wholesaling of pharmaceuticals to be very low. Bangalee and Suleiman (2015:527), argue that there could be an adverse impact on the pharmaceutical distribution chain due to the application of the proposed maximum logistics fee (Bangalee & Suleman, 2015:523). Pharmaceutical wholesalers will try to reduce overheads and their overall business costs as it is a direct reaction to the price cap regulations. Currier (2006:481), states that the price cap regulations can create an incentive for pharmaceutical wholesalers to reduce their service quality, which will be the opposite of the objectives of the National Drug Policy of South Africa (Currier, 2006:485).

Due to the medicine price regulations in South Africa, the pharmaceutical wholesalers cannot compete with prices of medicine nor can they compete with the differentiation of medicine sold to retailers. Pharmaceutical wholesale customers focus on the overall quality of service received from the pharmaceutical wholesaler, making service quality all the more important to stay competitive. Pharmaceutical wholesalers consistently try to differentiate themselves from their competitors by increasing the levels of service quality they provide. Knowing what kind of services customers expect and find more critical can be of great value to a pharmaceutical wholesaler.

2.3 SERVICE QUALITY

2.3.1 Definition of services

A service can be defined as an economic activity that typically produces an intangible product (Heizer *et al.*, 2017). Zeithaml *et al.* (1990) define service broadly as experiences, performances, and deeds produced or provided by one person or entity for another person or entity. Constantinides (2006:407) agrees with Heizer *et al.* by stating that service is an act or a benefit to the customer, but does not result in the ownership of anything tangible, making it a peculiar characteristic of service compared to goods. One should not, however, ignore the fact that products also supply intangible benefits. Marketing and its essence are based on the fact that customers do not buy and want goods for their own sake, but for the benefits they provide. This consequently implies that such things as real goods, or real service rarely exist as most offers are a combination of tangible and intangible elements. Wilson *et al.* (2012) are of the opinion that it is more difficult to evaluate services than goods because of its intangibility. This unique characteristic of services and their marketing implications are presented and discussed in the following section.

The customer's experience of the service received is defined as the subjective and internal responses the customer has after direct or indirect contact with the provider of the service. Direct contact is generally initiated by the customer, where a voluntary purchase, use or service occurs. Indirect contact can include media and word of mouth criticism and recommendations (Meyer & Schwager, 2007:116). The customer experience varies from person to person due to it being influenced by their views, interactions, and lifestyle behaviours. It is for these reasons that failure or

success of a service provided can be determined by certain variables that have an impact on the interaction, cultivation, and attraction between the service provider and its customers.

2.3.2 Characteristics of services

The unique characteristics of services that differentiate it from good or manufactured products have frequently and widely been argued and studied with growing consensus. Wirtz and Bateson (1999:55) state the following regarding service:

- service cannot be stored
- service is dependent on time
- service is dependent on the place
- the customer plays a fundamental role in the service delivery process
- The customer's perception of service quality is influenced by everyone and everything they come into contact.

Fahy and Jobber (2012), Putit *et al*. (2011) and McDonald *et al*. (2011) agree with Wirtz and Bateson (1999:58) that services have specific essential characteristics, namely intangibility, inseparability, heterogeneity/variability, perishability and lack of ownership. Wilson *et al.* (2012) take it further by arguing that services and the characteristics thereof, holds important implications for marketing practitioners in organisations.

2.3.2.1 Intangibility

Zeithaml *et al.* (1990), and later Wilson *et al*. (2012), state that intangibility is the most distinguishing characteristic of services. The intangibility of services can be derived from the fact that it cannot be seen, tasted, heard or felt before a customer buys it, and only then evaluates it. This can increase uncertainty for the buyer as it lacks the tangible properties that the buyer can investigate and evaluate before purchase. The buyer can however find it easier to assess the service after the purchase as it is usually high in experience qualities. Experience qualities such as efficiency, quality, and courtesy are properties of service that can be evaluated after the purchase. Because of the intangibility of service consumers can feel more at risk in their purchase and they then often seek tangible clues that can enable them to judge the quality of service. The appearance of a website, the staff, the facility, and the prices charged are all tangible clues consumers will use to evaluate the service quality.

2.3.2.2 Inseparability

The service quality experienced by a customer can be derived from the service quality attributes and physical evidence of the service production process, thus making it possible for customers to evaluate the service only during the delivery of the service, hence the inseparability and the variability of service. Unlike goods that are first produced then sold and then consumed, services are normally provided and consumed simultaneously in the same place.

This characteristic of service creates some marketing implications that Wilson *et al.* (2012) highlighted:

- The mass production and gaining of significant economies of scale through centralisation is difficult because services are mostly produced and consumed at the same time.
- The 'real-time' nature of services creates opportunities to customise offerings for individual customers that can result in an advantage.
- The customer is involved in the production process and can thus affect the outcome of the service transaction positively or negatively.
- The customer satisfaction and quality of service are highly dependent on the actions and interactions between the employee and customer in 'real time'.

2.3.2.3 Heterogeneity

This characteristic has the potential to impact consistency and the variability in the quality of a service rendered (Redda, 2015). This arises due to people being involved in the production and the consumption of service and the quality of the result will depend on the individual employee providing the service, the individual customer receiving the service and the time at which it is performed. Heterogeneity implies that service is always unique as it is never the same when repeated; different circumstances require minor adaptations in delivering similar services on separate occasions. These complicating factors make it difficult for a service manager to ensure that the service rendered to the customers is the same as what was promised and planned.

2.3.2.4 Perishability

The perishability of service derives from the fact that it cannot be stored and if it is not delivered, it is lost or does not exist (Wilson *et al*., 2012). It is vital for managers to pay attention to this characteristic of services especially during times where demands are unusually high or low. Decision areas managers should focus on to prevent this characteristic to influence the service rendered negatively include demand forecasting and capacity utilisation. Zeithaml *et al.* (1990) also state that the perishability of services implies that companies need robust recovery strategies should things go wrong.

2.3.2.5 Lack of ownership

The intangible nature of service means that it cannot be physically possessed because the product involves a performance, act, or effort that is offered and bought on the basis that it might cause potential satisfaction (Clapton, 2013). On purchasing a product, the buyer gains the full use of it with the benefits it provides. The buyer can store it, consume it or sell it. In the case of a service, however, a customer may only have personal access to it. To overcome the problem of ownership Doyle (2006) suggests that service managers employ strategies such as creating membership associations, stressing the advantages of non-ownership, for example, less risk of capital loss, and providing incentives for frequent use.

2.3.4 Quality Service

Quality is defined differently by many experts. Wicks and Roethlein (2009:85) state that the term quality is defined differently for different products, services, and industries (Wicks & Roethlein, 2009:85). Each expert also has their own orientations and perspectives that can influence their definition of quality.

The International Organisation for Standards' (ISO) definition of quality that states that quality is "the degree to which a set of inherent characteristics fulfils requirement" is the most used and accepted definition. The ISO definition for quality relates to that of the American Institute for quality (ASQ) that defines quality as "The totality of features and characteristics of a product or service that bears on its ability to satisfy stated or implied needs". Wicks and Roethlein (2009:87) agree with the ISO and ASQ definitions and also state that for any particular industry the contextual

factors, the purpose of the organisation and the customer base will give more clarity to their specific definition of quality.

According to Heizer *et al.* (2017), the many different definitions of quality can be disseminated into three different categories namely user-based, manufacturing-based, and product based (Heizer *et al.*, 2017). The user-based definitions of quality propose that quality lies in the eyes of the beholder (the customer), manufacturing-based definitions focus on conforming with standards, and product focused descriptions of quality focus on precise and measurable variables. By measuring the customers' satisfaction with services rendered, the quality of service can be determined, and an organisation will be able to highlight their strengths and areas of improvement. Customers compare their perceptions of a service received with the expectations they had before receiving the service. This comparison between perception and expectation means that the customers' satisfaction with service received and the service quality can be measured.

Heizer *et al.* (2017), state that quality can have significant implications for companies on the following fronts (Heizer *et al.*, 2017):

- Company Reputation;
- Product and Service liability; and
- Global Implications.

Heizer *et al.* (2017) also illustrate in a figure how managing quality can help an organisation build practical and successful strategies that will differentiate them, lower costs and increase sales, thus improving profitability. Putit *et al.* (2011) agree with Heizer *et al.* (2017) in stating that delivering high-quality service is a key to sustainable competitive advantage and will result in satisfied customers. As customers continue to upgrade their service expectations, service providers are forced to better their levels of courtesy and assistance. Hence, Mehralian *et al.* (2016:981) state that it is of high importance for companies to differentiate themselves and continuously upgrade their services quality to compete in a modern competitive environment. According to Niaz *et al.* (2009:26) service quality have a significant impact on customers' repurchase intentions, loyalty and recommendations to others. These factors in turn lead to the company's future revenue and profits. The authors further state that many companies in different industries adopt existing

service quality models to attract new customers and retain existing customers as there is enough research stating the linkages of service quality and customer satisfaction with profits. It is vital for pharmaceutical wholesalers to retain their customers and to create favourable behavioural intentions. Hence, the importance of a study that investigates the relationship and impact of service quality and customer satisfaction in the pharmaceutical wholesale industry (Putit *et al.*, 2011).

Parasuraman *et al.* (1985:48) were one of the first to study service quality and defined it as the difference between the expected and the perceived service received. Since then numerous studies have been conducted on service quality because of the impact of service quality on the performance of organisations. Due to the rapid growth of the service sector over the last few decades around the world, organisations have to focus more on delivering a service that meets the customer needs to make customers happy.

This is no different in the healthcare sector where, according to Mehralian *et al*. (2016:979) service quality management is the key to survival and success in the current competitive market (Mehralian *et al.*, 2016:979). Because of the increase of overall success of the healthcare sector companies that focus on the improvement of service quality, it has become the focus of many topics and studies. Service quality can have a substantial effect on patient satisfaction, and an increase in satisfaction will inevitably increase customer loyalty and customers' purchase intentions (Kandampully, 1988:438).

Many healthcare professionals and researchers study service quality and are interested in delivering a higher service quality because it has a direct impact on business performance. Pharmaceutical wholesalers need to do their best to improve the service quality they provide and satisfy their customers by delivering their products promptly and accurately. Most research on service quality in the healthcare sector focuses on the patient that is the end user. Although the Pharmaceutical Supply Chain forms an integral part of healthcare services, studies on the interactions between the different components of the supply chain have rarely been studied (Mehralian *et al.*, 2016:981). One such study, done by Putit *et al*. (2011) showed that there are positive correlations between the five dimensions of the

SERVQUAL model that measures service quality and customer satisfaction (Putit *et al.*, 2011).

The services that patients receive are strongly influenced by the quality of service received from the Supply Chain, making these interactions very important. The pharmaceutical wholesaler is part of the path through which essential pharmaceutical products are distributed to reach the customer at the right time, in sound quality and at the right place. This Supply Chain process is very complex and although the pharmaceutical wholesaler sells tangible goods, the service rendered is of the utmost importance not only for the competitiveness of the pharmaceutical wholesaler but also for the safety of patients. Mehralian *et al*. (2016:977), state that even minor errors at a pharmaceutical wholesaler are unacceptable due to the many challenges and the sensitivity of the Pharmaceutical Supply Chain that can have a direct impact on the health and safety of patients (Mehralian *et al.*, 2016:977).

2.4 The SERVQUAL model

2.4.1 Historical overview of the SERVQUAL model

Three American academics, Parasuraman, Berry and Zeithmal, developed the SERVQUAL model in the late 1980s to measure customers' perception of service quality (Parasuraman *et al.*, 1985:41). The model assumes that service quality is measured by determining the difference between the customers' perceptions and expectations of service received. Thus, if the expectation scores are subtracted from the perception scores, the service quality is measured. The higher a positive difference is, the higher the level of service quality is and the lower the positive difference or the higher the negative difference, the lower the level of service quality is (Parasuraman *et al.*, 1985:41). The perceived importance of the service attributes is also considered by the SERVQUAL model, making it possible for companies to prioritise the most critical characteristics that are identified by the customers as lacking in quality.

However, since the development of the service quality measurement scale of Parasuraman *et al.* (1988:19), it has not been without criticism. Salvador-Ferrer (2010:168) argues that the critique mainly focuses on the situational instability that is shown by the dimensions of the SERVQUAL scale in some instances (Salvador-Ferrer, 2010:168). He further argues that the distribution of weights assigned to each

dimension, or rather the lack thereof, as it was first hypothesised that all the dimensions carry the same weight, leads to further criticism. Putit *et al.*(2011) agree that the five dimensions of Parasuraman *et al*. (1988:22)'s service quality measurement scale are not so generic that researchers should not add dimensions they believe to be important in a specific industry. Further, should a dimension be of great significance to customers in a particular industry, it can be decomposed into more sub-dimensions and vice versa. Devi *et al*. (2016:258), found that the dimensions; assurance, reliability, responsiveness, and communication to be the critical dimensions affecting a company's service quality in the pharmaceutical supply chain industry (Devi *et al.*, 2016:258).

Wilson *et al*. (2012) explain that some factors can influence the expectations of the customers before having received any service from an organisation; these factors can potentially influence how customers assess the service quality (Wilson *et al.*, 2012).

These factors include:

- **Word of mouth communication:** This communication can either be between a customer and someone that has received a service from the organisation or someone that has never used the service of an organisation. One customer that is unsatisfied with the quality of service can potentially affect numerous other customers negatively, just as a customer that received excellent service quality can influence other customers positively.
- **Personal needs:** Every individual or customer is different. This creates a significant ferity of needs, which if not met, can lead to poor service quality. This ferity of needs of customers makes it difficult for organisations to satisfy all customers. If the needs of a customer are met, the perceived service quality will be assessed as competent.
- **Experience:** If customers previously experienced excellent quality service from an organisation they are more likely to return and use the service again (Chahal & Kumari, 2010:232).
- **External communication:** This includes what the marketing organisations do in promoting their service quality. Promotion creates a certain expectation of the service that should be received. Promoting and communicating high standards that cannot be met will have a negative influence on the perceived

service quality. The pharmaceutical industry is highly regulated and prohibits the advertising of medicine on social media and blogs to the public.

Parasuraman *et al.* (1985:45) first identified ten categories, also known as "*determinants of service quality*", that customers use to evaluate service, regardless of the type of service. Overlapping occurred between the ten determinants and after further research the ten determinants was narrowed down and combined to form the five dimensions as it is known today:

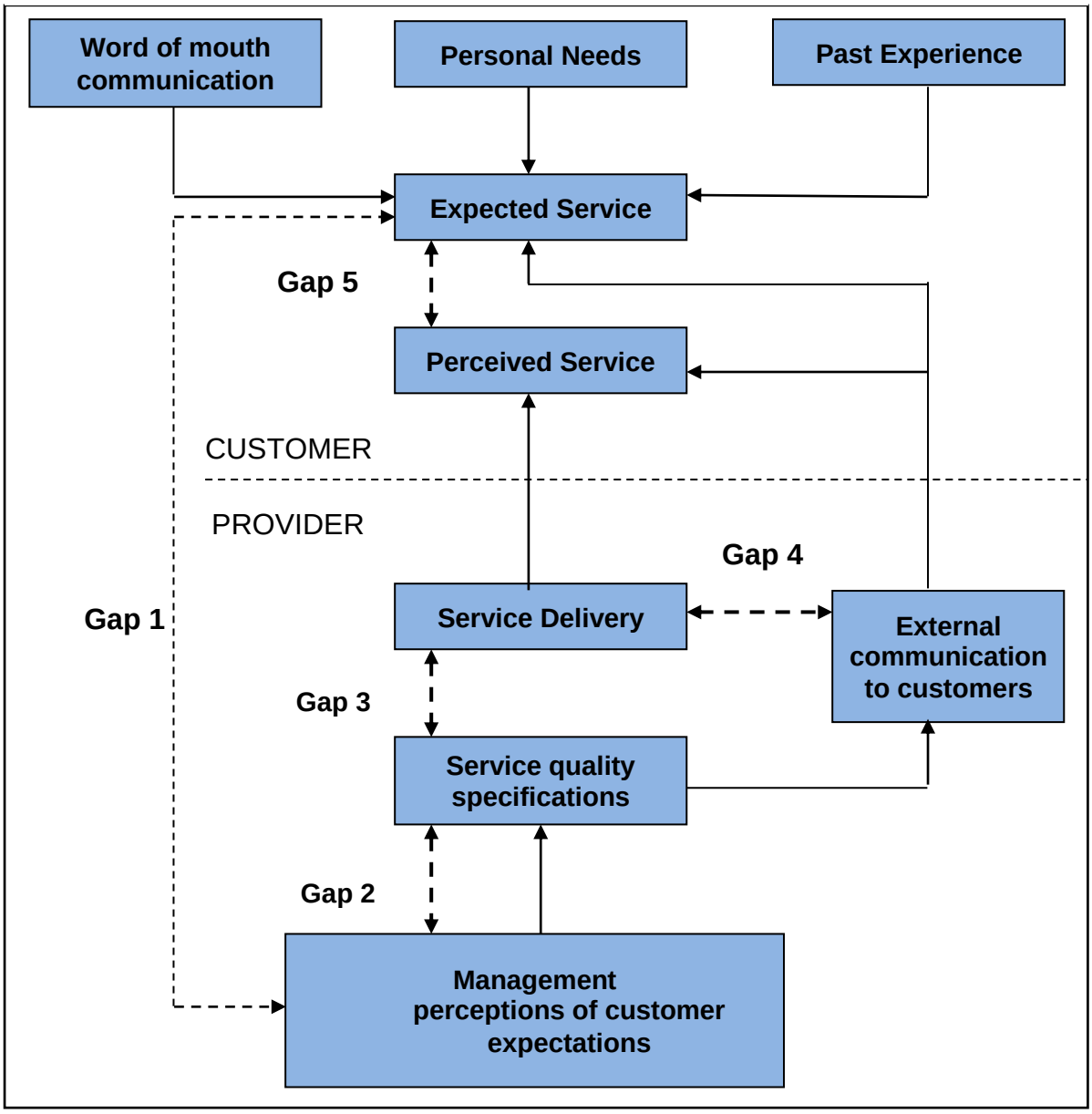
- **Assurance:** Measuring the knowledge and courtesy of the employees of the organisations that convey trust and confidence.
- **Empathy:** Measuring how individualised and caring attention is provided to customers.
- **Reliability:** Measuring how accurately the promised service is performed.
- **Responsiveness:** Measuring the timeliness of service, providing prompt service.
- **Tangibles:** Measuring the physical representation of the services including physical facilities, the appearance of personnel, equipment and communication material.

Contributions by several other researchers led to the identification of as many as fifteen dimensions. In practice, however, these dimensions did not meet expectations, and the main dimensions in the original SERVQUAL model are mostly used by researchers, primarily because of the ability of the model to analyse not only the dimensions, but also can do a gap analysis.

2.4.2 The SERVQUAL model

The SERVQUAL model, as operationalised by the developers, appears in the figure below; the different gaps are explained thereafter.

Figure 2.1: SERVQUAL model dimensions



Source: Zeithaml *et al*. (1990)

The model, as shown in figure 2.1, clearly shows the separation between the customer and the service provider. The customer gap arises because of the difference between the service expected and the service as it is experienced. Customer expectations are formed by:

- The customer's experiences
- The customer's perceptions that arose as a result of oral communication with acquaintances, friends and other contacts
- The customer's personal needs
- Company-controlled communications such as advertisements, publicity, promotions or sales staff promises

In addition to the customer gap, the service provider gaps also exist. These gaps are shown in figure 2.1 as Gaps 1-4. These four gaps arise as a result of actions by the service provider. The gaps are:

- **Gap 1:** This gap is known as the consumer expectation-management perception gap. Discrepancies can exist between what management think the customers' service expectations are, and what the actual expectations of the customers are. This gap can lead to managers making uninformed decisions that can lower the level of service quality (Van Heerden, 2010). Factors that can cause this gap can include poor market research or the use of market research, lack of communication and interaction between the customers and management, or lack of communication between the managers and employees in contact with customers(Kleynhans, 2008).
- **Gap 2:** The specification gap that entails that management's perceived high standards of service are not evaluated frequently and might cause service quality to lack due to insufficient training of employees or a lack of standardised tasks. Factors that can cause this gap include management that are not committed to service quality or tasks and processes that are not standardised.
- **Gap 3:** The performance gap occurs when there is a difference between the specified service quality and the actual service quality delivered. According to Kleynhans (2008), the set standards should be used to evaluate the employees, thus ensuring that the real service provided by the employees corresponds with the managements' expectations. Factors that can cause this gap include a lack of teamwork, inadequate compensation systems and employees or technology that is not fit for the job.
- **Gap 4:** This gap exists when there is a difference between the actual service level and the service that is being externally communicated by the organisation. Management has to make sure that the externally communicated service levels are met. This gap is usually caused by a tendency of organisations to promise more than what they can deliver. A lack of communication between different departments of an organisation can also cause this gap.

A high percentage of companies would agree that a thorough understanding of the service needs of their customers and service quality perceived would be of high value and help immensely to improve their service quality. The SERVQUAL model offers just this by providing information regarding the customers' perception of the service and performance of service received, with suggestions from the customers. The results can be used to adapt the quality standards to fit the customers' priorities and show which processes need to be changed or fixed.

- **Gap 5:** The customer gap that identifies the overall difference between expected service quality and perceived service quality. Customers determine the service quality that is provided by an organisation and not all customers perceive service quality the same. Kleynhans (2008) also states that there are several ways that service quality can be met and include either meeting or exceeding the customers' expectations, or by changing the customers' expectations (Kleynhans, 2008). This customer gap has only three outcomes:
    - **Situation 1:** No gap exists as service delivery equals the expectations created.
    - **Situation 2:** A negative gap arises where the service received is worse than the expectations created. This gap (or rather its prevention) is the focus of customer-oriented businesses.
    - **Situation 3:** A positive gap arises where service delivery exceeds expectations and leads to satisfaction and happiness. Enterprises are striving to function in this gap.

Companies that are customer-oriented focus on positive customer gaps. Positive customer gaps lead to long-term commitments from customers as well as the improved profitability of organisations (Mehralian *et al*., 2016:976).

2.4.4 Strengths and shortcomings of the SERVQUAL model

The strength of the model, according to Bisschoff and Lotriet (2009:266) is that it identifies service dimensions that are underperforming as well as the analysis of the origin that causes the service failure (located in the gap analysis) (Bisschoff and Lotriet, 2009:267). Furthermore, the popular measurement, namely Gap 5, is also a fast measure to determine the service levels without necessarily applying the entire model. The SERVQUAL model provides for two overhead sets of gaps, namely the

gaps which occur on the customer's side, and then the gaps that occur on the service provider's side.

2.4.3 Application of the SERVQUAL MODEL in the health industry

Several researchers like Mehralian, Devi, Adebisi and Lawal have used the SERVQUAL model to measure the service quality of businesses in the healthcare sector and found it to be a reliable model that shows how organisations can improve their service quality.

Mehralian *et al.* (2016:980) used this model to measure the service quality of a pharmaceutical distributor in Iran, where the customers completed a survey that measured and compared the perceived and expected service needs of the customers. Identified gaps between the perceived and expected service their customers received were then analysed and used to improve the distributor's service quality.

Adebisi and Lawal (2017:4) recently conducted a study on what the impact of service quality of pharmacies will have on customer loyalty by using the SERVQUAL model. The findings of the study revealed that all five service quality dimensions have a significant positive effect on customer loyalty and that health service providers should improve their quality of service for their customers to stay loyal (Adebisi & Lawal, 2017:5).

Another study that used the SERVQUAL model in the healthcare sector was that of Devi *et al*. (2016:259), where they evaluated the service quality from a distributor's perspective in the supply chain. The results showed that all five service quality dimensions significantly affect customer satisfaction (Devi *et al.*, 2016:260).

The abovementioned studies that used the SERVQUAL model in the healthcare industry where excellent service quality is expected have been revalidated by this study that measures the service quality of a pharmaceutical wholesaler in South Africa.

Pharmaceutical companies can use this model to measure the quality of service their employees provide to their customers. Shortcomings or gaps can be identified that

can be analysed to find solutions and close the gaps between the perceived and expected quality of service.

2.5 SUMMARY

Chapter 2 focused on the literature study of the pharmaceutical industry, service quality and its elements. The SERVQUAL model and its dimensions, and the dimensions of service quality were also discussed. The difference between customers' perception and expectations was explained with the gaps that can be identified in the service industry.

Chapter 3 includes the research methodology and the results of the study.

CHAPTER 3: RESEARCH METHODOLOGY AND RESULTS

3.1 INTRODUCTION

In the preceding chapters, a background was created against which the empirical research of this study can be considered. In this chapter the research methodology applied and the results of the empirical research that investigates the service quality of a pharmaceutical wholesaler in the South African setting is described. The description includes the questionnaire design, population, data collection process, the statistical techniques used to process the data, and the results of the study according to the SERVQUAL model used.

As previously mentioned, this study aimed to measure customer satisfaction with the service received from the selected pharmaceutical wholesaler. Van Heerden (2010) states that the SERVQUAL model has been used numerous times for measuring service quality in different industries and Clapton (2013) affirm that the SERVQUAL model has been used in various health institutions. The study conducted by Mehralian *et al.* (2016:975), where they developed a service quality measurement scale for measuring the service quality received by pharmaceutical retailers from pharmaceutical distributors, can be adapted and used to measure the service quality of a pharmaceutical wholesaler in South Africa.

3.2 RESEARCH METHODOLOGY

3.2.1 Questionnaire design

A survey method, with the help of a structured questionnaire, was used to collect the primary data on a 7-point Likert scale. From the literature review a questionnaire was developed based on the SERVQUAL model that is seen as one of the most acceptable service quality models.

The existing questionnaire used by Mehralian *et al*. (2016:976) will be adjusted and used in this study. The original questionnaire was adapted to fit the pharmaceutical industry better (see Appendix A) so that service levels delivered by a pharmaceutical wholesaler can be evaluated. The validity of the original SERVQUAL questionnaire has repeatedly been tested by numerous researchers like Kade and Bisschoff (2010), Carrillat *et al.* (2007:475) and Adebisi and Lawal (2017:4), where they found the validity to be high. The SERVQUAL model's strength lies in the fact that it was

designed to be not industry specific. Therefore, the questionnaire used in this study will be based on the SERVQUAL principles, but its questions will be adapted to be more specific for pharmaceutical wholesalers in South Africa. Although this might lower the validity of the questionnaire, the validity of the modified questionnaire and the reliability of the data was scrutinised statistically.

The face- and content validity of the questionnaire was ensured by presenting it to a group of experts in the field of pharmaceutical supply chain. This included pharmacists, quality assurance pharmacists, pharmaceutical wholesale managers, sales and marketing managers, logistics managers, financial managers and supply chain managers as well as personnel knowledgeable in the field of customer service to evaluate and scrutinise both the question formulations and the layout of the modified service quality measurement scale. They were also instructed to suggest any missing service quality concepts they deem essential in such a service quality study. These suggestions and changes were made to the questionnaire to finalise it. It is also important to note that the five dimensions of quality of service namely the reliability, tangibles, assurance, empathy, and responsiveness (as measured by SERVQUAL) will be used to evaluate the service quality levels.

The questionnaire was designed in Google Forms in such a way that all relevant questions had to be answered, ensuring completeness. Confidentiality was secured for each participant. The questionnaire consists of three sections. Section A captures the classifying variables. Classifying variables will typically include if the wholesaler is the customer's first choice pharmaceutical wholesaler, will the customer refer this pharmaceutical wholesaler to other healthcare professionals, and what type of customers.

In Section B of the questionnaire will be the 29 statements where customers rate the perceived and expected service with a 7-point Likert scale. The answers to these 29 statements will be indicated in two columns next to the statements, where the levels of perceived and expected quality of service will be indicated by using a 7-point Likert scale with a scale range from 1 (strongly disagree) to 7 (strongly agree). The statements in the questionnaire (see Appendix A) can be categorised under the following antecedents according to Mehralian *et al*. (2016:977):

- Reliability: Statements 1-9

- Tangibility: Statements 10-15
- Assurance: Statements 16-21
- Empathy: Statements 22-26
- Responsiveness: Statements 27-29

Section C is an open-ended questions section where respondents can add their views on service quality should they wish to elaborate on their service quality experiences.

3.2.2 Study population

The study population consists of all customers of the specific wholesaler. The company's customer list comprises independent and retail pharmacies, doctors, hospitals, clinics and veterinarians; all of them formed part of the study population.

This study targeted the population. No sample was drawn. All the customers on the address list received the adapted and structured SERVQUAL questionnaire via email. Based on Saunder's (2009) findings that a low percentage of response rates between 10 and 50 for surveys and questionnaires that are sent via email can be expected, the questionnaire was sent to the whole population to prevent a shortage of data.

The questionnaire was designed in GoogleForms in such a way that all relevant questions had to be answered, ensuring completeness. Confidentiality was ensured for each participant. Over the two-week period a total of 4468 questionnaires were distributed via email and a total of 385 were received back. This signifies a response rate of 8.6%.

Data analysis identified key drivers of customer service, the differences, and relationships of variables and antecedents. Lastly, the data were then summarised and results presented, which enabled the researcher to investigate the results and conclude them.

3.2.3 Location of a unit of analysis

The population that was used consisted of the customers of the pharmaceutical wholesaler that distributes pharmaceutical products nationally. The population is thus

geographically located all over South Africa. Communication details were made available at the pharmaceutical wholesaler, and the call centre of the pharmaceutical wholesaler helped in the process of contacting all customers to make them aware of the survey and sent out an email with a link to Google Forms where the survey in the form of a SERVQUAL questionnaire could be completed.

3.2.4 Accessibility of unit of analysis

Permission was granted at a managerial meeting held by the pharmaceutical wholesaler to gain access to the contact details of all customers of the pharmaceutical wholesaler for research purposes only and that personal information will not be used otherwise. Formal communication with customers already takes place at the pharmaceutical wholesaler as financial statements, invoices, and marketing materials are sent to customers on a regular basis, making all communication details accurate and up to date. The call centre came in contact with the specific professional customers that have been identified in the pharmaceutical wholesaler's database to inform them regarding the questionnaire. Customers were made to understand that this study will give the management of the pharmaceutical wholesaler a more explicit indication where they should put their focus more to improve service quality and that the customers would benefit from answering the questionnaire. High service quality is of the utmost importance for the pharmaceutical wholesaler and thus the reason for the management of the pharmaceutical wholesaler agreeing on conducting the survey, giving access to customer details and sending out all communication to customers.

3.2.5 Suitability of unit of analysis

The study's primary objective was to measure the perceived and expected service quality of a selected pharmaceutical wholesaler in South Africa. Customers of the pharmaceutical wholesaler place orders with the pharmaceutical wholesaler regularly and receive a service from the pharmaceutical wholesaler on a regular basis, making the customers of the pharmaceutical wholesaler the most suitable and appropriate to answer a SERVQUAL questionnaire regarding perceived and expected levels of service quality received from the pharmaceutical wholesaler. This study was conducted on the assumption that the customers' satisfaction with the services received by the pharmaceutical wholesaler would possibly affect future use of the pharmaceutical wholesaler as most customers have accounts with multiple

pharmaceutical wholesalers. The questionnaire sent via email was not only a fast and easy way to communicate to the customers but also the most convenient for the customers.

3.2.6 Data collection

The data collection process can be divided into the following steps:

Step 1: Permission - The study has been approved in a managerial meeting by the Operational Manager of the pharmaceutical wholesaler, as well as the Responsible Pharmacist.

Step 2: Awareness - A formal letter per email was sent from the pharmaceutical wholesaler, and the call centre helped to sensitise and explain the purpose of the study.

Step 3: Distribution - The formal letter that was sent by the pharmaceutical wholesaler had a link to Google Forms that opened the questionnaire to all customers of the pharmaceutical wholesaler. The questionnaires were distributed on a specific date, and the deadline was communicated to all personnel and customers to maximise the response rate quantity of completed questionnaires.

Step 4: Collection - The call centre of the pharmaceutical wholesaler assisted in the sending of the questionnaires. After the agreed time frame, the questionnaires and data were collected from Google Forms by the researcher for processing and analysis.

3.2.7 Statistical analysis and decision criteria

The data was analysed by the software IBM Statistical Package for Social Sciences software (Version 25). The data and their respective decision-criteria were analysed by several quantitative statistical techniques as shown in Table 3.1.

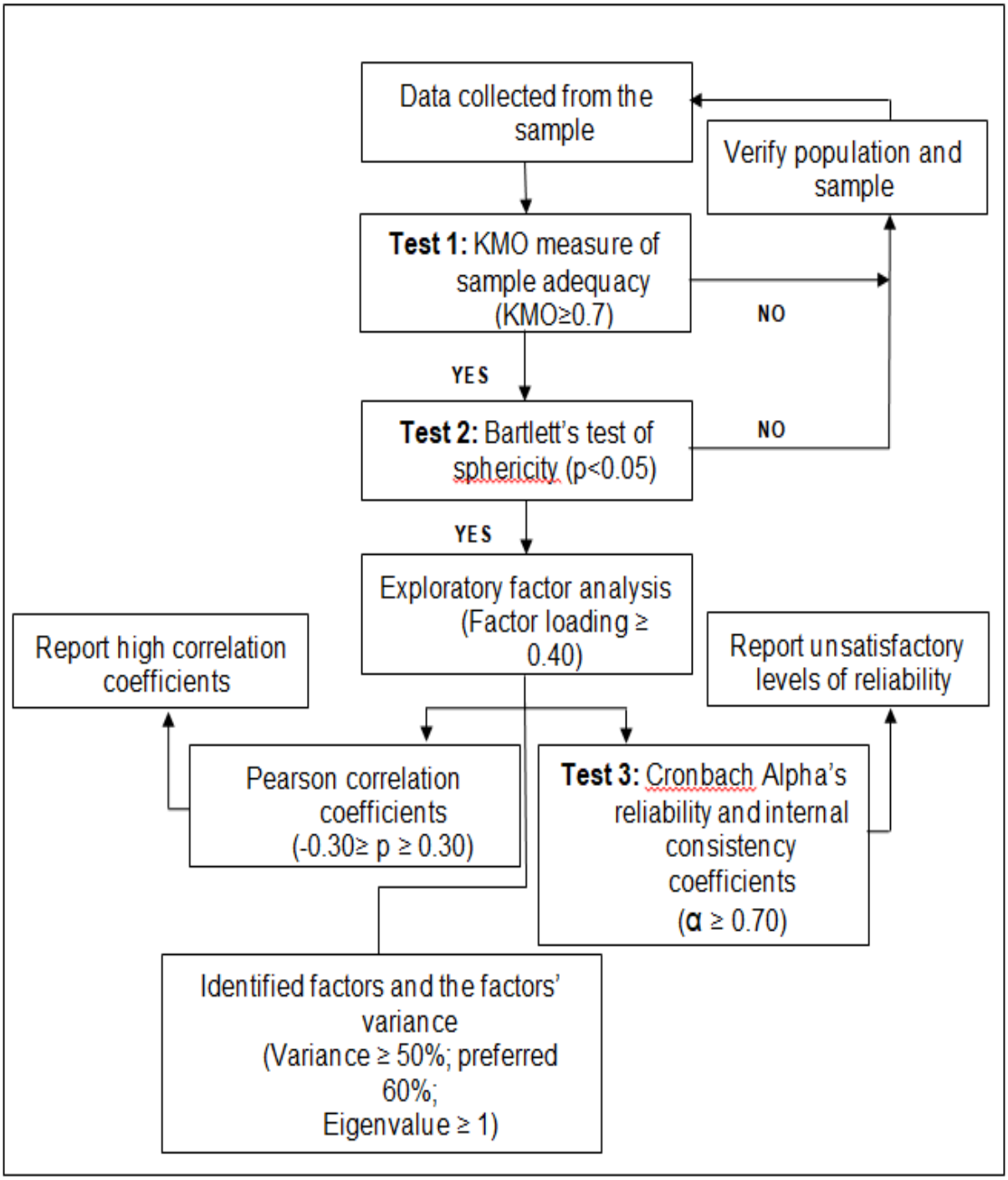
Table 3.1: Statistical techniques employed and decision criteria

Statistical technique	Decision criteria	Substantiating source
Descriptive statistics	***	Field (2009)
Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy	KMO ≥ 0.9 (Excellent) KMO ≥ 0.8 (Very good) KMO ≥ 0.7 (Good) KMO ≥ 0.6 (Acceptable) KMO ≤ 0.6 (Unsatisfactory)	Field (2009) Fields & Bisschoff (2013b) Imandin (2015) Golafshani (2003)
Bartlett's test of sphericity	$p < 0.05$	Field (2009) UCLA (2017a)
Cronbach Alpha reliability coefficients	$\alpha \geq 0.70$ (Reliable) $0.57 \leq \alpha \leq 0.70$ (Acceptable) $\alpha \leq 0.57$ (Not reliable)	Salkind (2000) Cortina (1993) Field (2009)
Exploratory factor analysis (Orthogonal Varimax rotation)	Factor loading ≥ 0.40 Variance ≥ 50% (Acceptable) Variance ≥ 60% (Desirable) Eigenvalue ≥ 1	Costello & Osborne (2005) Field (2009) Arbuckle (2012) UCLA (2017a; 2017b)
Pearson correlation coefficient	$-0.30 \geq p \geq 0.30$ $p \geq 0.05; 0.10$	Tang *et al*. (2003) Du Plessis (2010). Zikmund (2008)

Source: Original sources retained as cited by Shaikh (2017)

To illustrate the inter-relationships between the different techniques and their chronological order of use, the statistical analysis decision tree in Figure 3.1 (originally developed by Naidoo, 2011) was used as a guide.

Figure 3.1: Data analyses decision-tree



Source: Adapted from Arbuckle (2012), Naidoo (2011:19), and Field (2009)

3.2.8 Ethical considerations

This study applied the following ethical principles:

- Participation in the survey was voluntary
- Personal data of the customers that participated voluntarily was processed lawfully and fairly and used only for the study
- Personal responses from customers were not ascribed to any individual

- The questionnaire did not contain the names or any other personal information of customers and the anonymity of customers was maintained throughout the study
- The interpretation of the survey finding was upheld with independent objectivity.

This study was evaluated for compliance to the ethical standards, practices and requirements of the North-West University's Ethical Committee (Faculty Economic and Management Sciences). The committee approved the study and classified it as a low-risk study; a study-specific ethics number NWU-00271-18-A4 was issued.

3.3 RESULTS

The data was captured on Microsoft Excel and imported into the Statistical Package for Social Science (IBM SPSS v25) where data analysis was performed. Microsoft Excel was used to determine the effect size or practical significance on the information received. The specialised statistical software was used for the more advanced statistics, that included the reliability of the data, exploratory factor analysis to identify underlying factors within the quality of service dimensions. The Bartlett Test of sphericity and the Kaiser, Meyer and Olkin Measure of Sampling Adequacy measure were also performed to determine if the data was suitable to be subjected to factor analysis (see also Table 3.1).

3.3.1 Demographic analysis

In this study customers were classified into three customer categories. These categories are pharmacies, doctors and others (others represent wholesalers, hospitals, clinics, veterinary facilities, health shops, homeopaths and export customers). The demographic profile of customers of the pharmaceutical wholesaler is fairly represented in the sample in this regard. In the sample pharmacies account for 39.5% of customers, doctors 38.2% of customers and the other category of customers that include other wholesalers, hospitals, clinics, veterinary facilities, health shops, homeopaths and export accounts for 22.3%.

The customers were further sub-divided into two categories of delivery methods: they receive their stock delivered from the pharmaceutical wholesaler; the delivery methods are couriered or the wholesaler's own delivery vehicles and drivers were

used. Customers receiving inventory with the use of the wholesaler's delivery vehicles account for 75.6% of customers, whereas customers receiving stock that is delivered to them by courier from the pharmaceutical wholesaler, accounts 24.4% of customers.

The percentage of customers that indicated that they are satisfied with the overall service from the pharmaceutical wholesaler was 97.7%, in comparison with 2.3% who said they were not satisfied. This represents an excellent satisfaction percentage and the wholesaler should strive to maintain these service levels.

3.3.2 SERVQUAL GAP 5 analysis

The data received about the different dimensions of service delivery that was addressed by the questionnaire will now be analysed and discussed. The level of actual or perceived service delivery is compared with the expected level of service delivery and the gap between the two levels was determined.

The results are presented in Table 3.2. The criteria in the tables represent the summary index values per statement. The average expected service and perceived service per statement is followed by the difference between them, and also the overall difference between expected and perceived service. The average difference per dimension between expected and perceived service is also shown in Table 3.2.

Table 3.2: SERVQUAL GAP 5 results

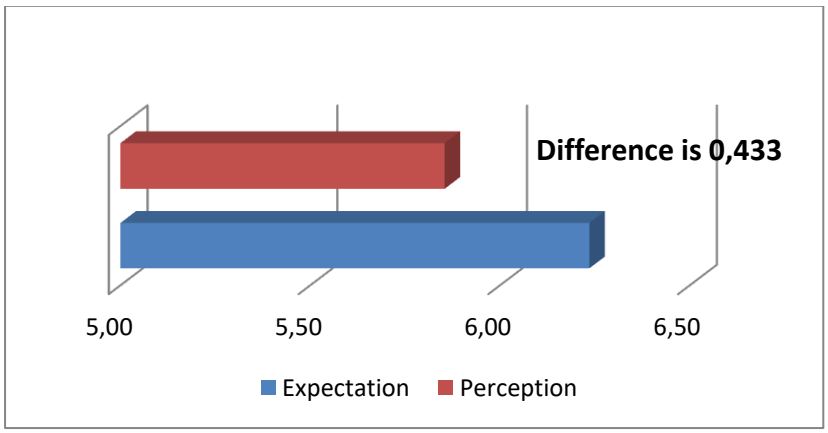
DIMENSION	STATEMENT	AVERAGE SCORES		E - P	AVERAGE FOR DIMENSION
		E	P		
Assurance	15. Order placing are accurate	6,252	5,839	0,413	**0,484**
	16. Stock delivered on time	6,488	5,919	0,569	
	17. Deliveries incorporate specific business needs	6,294	5,938	0,356	
	18. Call centre agents are professional	6,384	5,956	0,429	
	19. Ability to resolve queries	6,283	5,608	0,675	
	20. aims to provide excellent service	6,439	5,977	0,462	
Empathy	1. Interest in solving any product related problems	5,919	5,327	0,592	**0,437**
	21. Sincere interest in solving problems	6,312	5,743	0,569	
	22. Call centre is easy to reach	6,343	5,951	0,392	
	23. Payment methods are convenient	6,395	6,216	0,179	
	24. Fulfil specific business requirements	6,325	5,873	0,452	

DIMENSION	STATEMENT	AVERAGE SCORES		E - P	AVERAGE FOR DIMENSION
		E	P		
Responsive -ness	25. Responds effectively to account enquiries	6,351	5,966	0,384	**0,544**
	26. Responds effectively to complaints	6,304	5,740	0,564	
	27. Inform on when order will be delivered	6,195	5,574	0,621	
	28. Delivers in time and in full	6,408	5,800	0,608	
Reliability	2. Deliveries contain correct products	6,509	6,195	0,314	**0,483**
	3. Deliveries contain correct quantities	6,447	6,088	0,358	
	4. Competitive pricing on non-SEP products	6,177	5,644	0,532	
	5. Promotions communicated effectively	6,135	5,771	0,364	
	6. Relevant promotions	5,953	5,525	0,429	
	7. Stock all relevant items required in business	6,075	5,174	0,901	
Tangible	8. Packaging material of good quality	6,470	6,153	0,317	**0,281**
	9. Modern online website	6,042	5,486	0,556	
	10. Marketing materials visually appealing	6,481	6,325	0,156	
	11. Vehicles well branded	6,145	6,026	0,119	
	12. Drivers act professionally	6,353	6,029	0,325	
	13. Drivers are professional in appearance	6,244	5,860	0,384	
	14. Cold chain is maintained for fridge parcels	6,517	6,405	0,112	
TOTAL		**6,294**	**5,861**	**0,433**	

The analysis shows that the customers' expected service from the wholesaler was not met. From the table above (Table 3.2) and in Figure 3.2 below the scores are visible and show that the services rendered to customers did not exceed their expectations.

The mean scores for the 28 statements are 5.861 (perceptions) and 6.294 (expectations), with a mean of the gap of 0.433.

Figure 3.2: Expectation and Perception

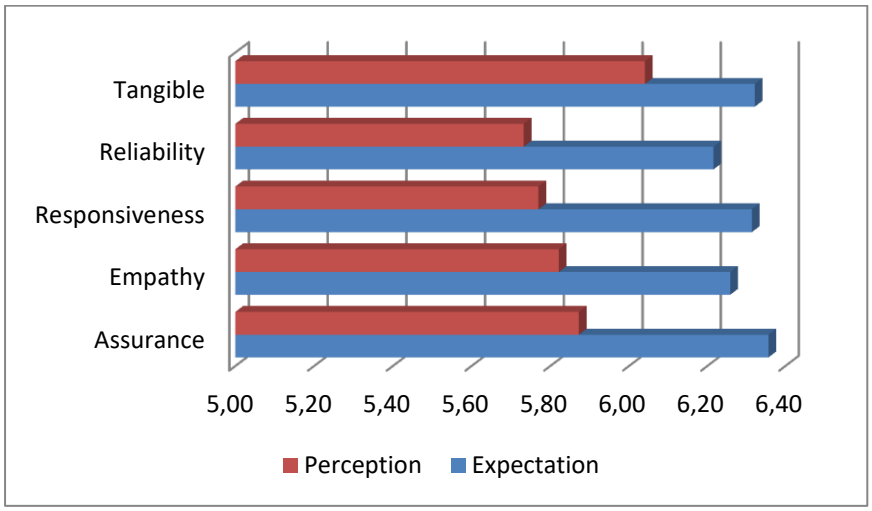


The average expected and perceived service per dimension and the difference is shown in table 3.3.

Table 3.3: Average expected and perceived service per dimension

DIMENSION	Expectation	Perception	GAP Average
Assurance	6,357	5,873	0,484
Empathy	6,259	5,822	0,437
Responsiveness	6,314	5,770	0,544
Reliability	6,216	5,733	0,483
Tangibility	6,322	6,040	0,281

Figure 3.3: Average expected and perceived service per dimension



It appears that customer expectation for the assurance dimension is the highest with an average of 6.357, followed closely by the tangible and responsiveness dimensions with averages of 6.322 and 6.314. The dimension with the lowest average customer expectation is that of reliability, with an average of 6.219. The most significant gap between customer expectations and perceptions is that of the responsiveness dimension with a difference of 0.544.

3.3.2.1 Effect size

The effect size or practical significance (d) was used as a measure to determine if significant differences exist between the perceptions and the expectation of the customers. The effect size d-value range between 0 and 1.0. A d-value of 0.8 and higher implies that there is a large practical significance. Values between 0.5 and 0.8 suggest medium practical significance, where a d-value of more than 0.2 but less

than 0.5 signifies a small or moderate significance (Ellis, 2010). For this study, d-values of 0.2 and above (thus indicating low or high levels of practical significance) are considered significant differences between the perceptions and the expectation of the customers. The results of the effect size of each item appear in table 3.4 while the effect sizes regarding the service dimensions are shown in table 3.5.

Table 3.4: Standard deviation and effect size

ITEM	DIFFERENCE IN AVERAGE	STANDARD DEVIATION	EFFECT SIZE
1. Interest in solving any product related problems	0,592	1,550	0,382*
2. Deliveries contain correct quantities	0,358	1,276	0,281*
3. Deliveries contain correct products	0,314	1,186	0,265*
4. Competitive pricing on non-SEP products	0,532	1,463	0,364*
5. Promotions communicated effectively	0,364	1,549	0,235*
6. Relevant promotions	0,429	1,534	0,279*
7. Stock all relevant items required in business	0,901	1,539	0,586**
8. Packaging material of good quality	0,317	1,344	0,236*
9. Modern online website	0,556	1,643	0,338*
10. Marketing materials visually appealing	0,156	1,146	0,136
11. Vehicles well branded	0,119	1,468	0,081
12. Drivers act professional	0,325	1,322	0,246*
13. Drivers professional in appearance	0,384	1,409	0,273*
14. Cold chain is maintained for fridge parcels	0,112	1,185	0,094
15. Order placing are accurate	0,413	1,443	0,286*
16. Stock delivered on time	0,569	1,547	0,368*
17. Deliveries incorporate specific business needs	0,356	1,486	0,239*
18. Call centre agents are professional	0,429	1,449	0,296*
19. Ability to resolve queries	0,675	1,539	0,439*
20. aims to provide excellent service	0,462	1,316	0,351*
21. Sincere interest in solving problems	0,569	1,486	0,383*
22. Call centre is easy to reach	0,392	1,399	0,280*
23. Payment methods are convenient	0,179	1,351	0,133
24. Fulfil specific business requirements	0,452	1,415	0,319*
25. Responds effectively to account enquiries	0,384	1,391	0,276*
26. Responds effectively to complaints	0,564	1,548	0,364*
27. Inform on when order will be delivered	0,621	1,688	0,368*
28. Delivers in time and in full	0,608	1,513	0,402*

* *Moderate practical significance*

** *Medium practical significance*

No significant practical significance was found between the perceptions and expectations with regards to the individual items. All d-values are below 0.8 (large significance) and values mostly are between 0.2 and 0.5 (signifying moderate

practical significance). Item 7 shows a medium level of practical significance with the effect size value between 0.5 and 0.8.

The practical significance of the five service dimensions is shown in Table 3.5.

Table 3.5: Effect size per dimension

ITEM	E	P	DIFFERENCE IN AVERAGE	STANDARD DEVIATION	EFFECT SIZE
Assurance	6,357	5,873	0,484	1,463	**0,331**
Empathy	6,259	5,822	0,437	1,440	**0,303**
Responsiveness	6,314	5,770	0,544	1,535	**0,355**
Reliability	6,216	5,733	0,483	1,425	**0,339**
Tangible	6,322	6,040	0,281	1,359	**0,207**

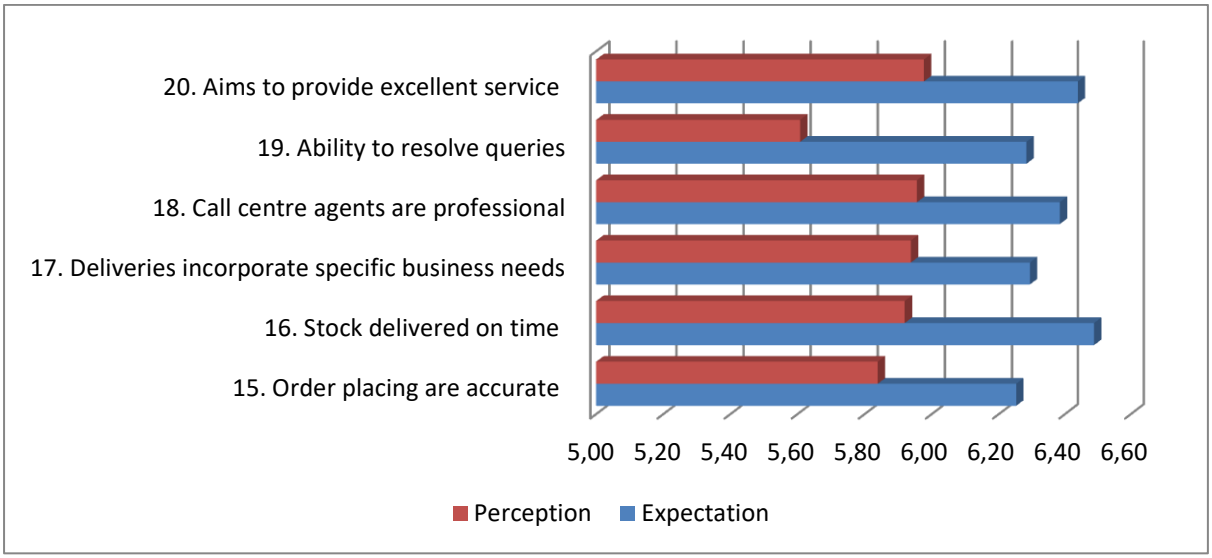
The practical significance between the perceptions and expectations in all five dimensions of service quality are moderate with d-values between 0.2 and 0.5. This means that there are no large discrepancies in service quality levels between what the customers expect, and what they received.

3.3.2.2 SERVQUAL antecedents

3.3.2.2.1 Assurance

The gap scores and the effect size for the assurance dimension are the third largest of the five dimensions (see Table 3.4). Assurance will let customers feel safe and instil confidence and trust in the ability of the wholesaler to perform expected services. This is achieved by employees being courteous and knowledgeable to answer customers' questions. Through good knowledge about the pharmaceutical products and services and at the same time acting courteously, will usually take away the uncertainty that customers might have.

Figure 3.4: Assurance



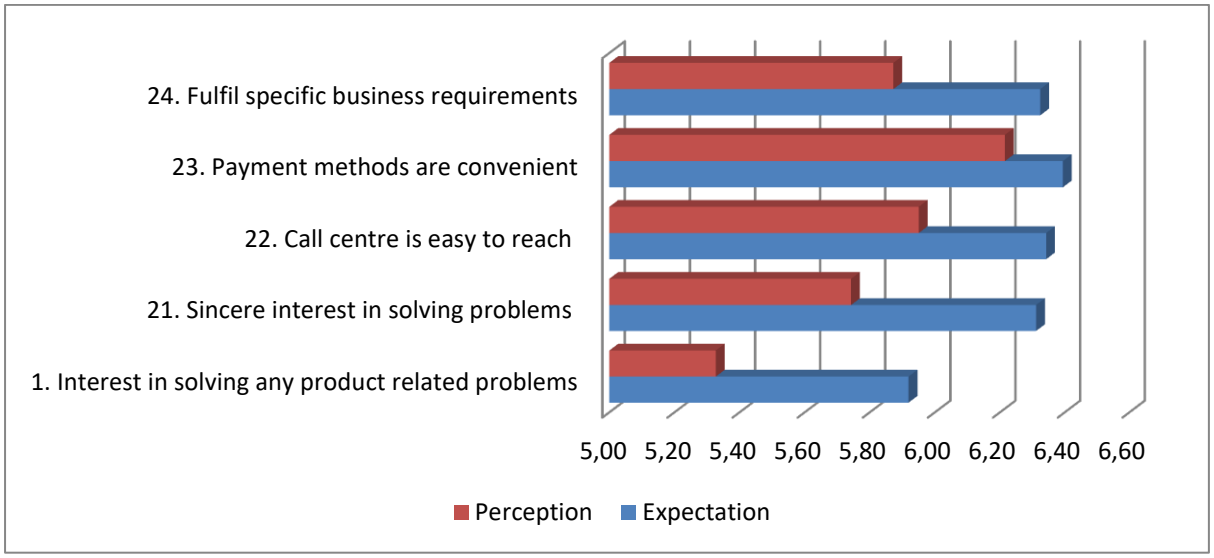
Employees, who are well trained in all the products and services rendered by the wholesaler, should be able to act calmly and focused. The effect would make the customer feel safe during their interaction with employees, but in this instance, it seemed to be untrue. The statement that states 'Call centre agents can resolve my queries', had a gap of 0.675, that is the second most significant gap of all statements in the questionnaire and also the second biggest effect size of 0.439 (see table 3.4).

Employees were not questioned about their qualifications or work-related knowledge of products and services rendered, but according to customers' perceptions, they do not know to answer some of their questions.

3.3.2.2.2 Empathy

Excellent communication skills and explicit listening skills are required to show empathy. One technique is to let the customer do most of the talking. This ensures that the employee understands the customer's problems better, making it possible to optimally understand and attend to the customer's service needs. The employees do not exceed the customers' expectation in this dimension of service quality with an average gap of 0.437. (See also figure 3.5).

Figure 3.5: Empathy



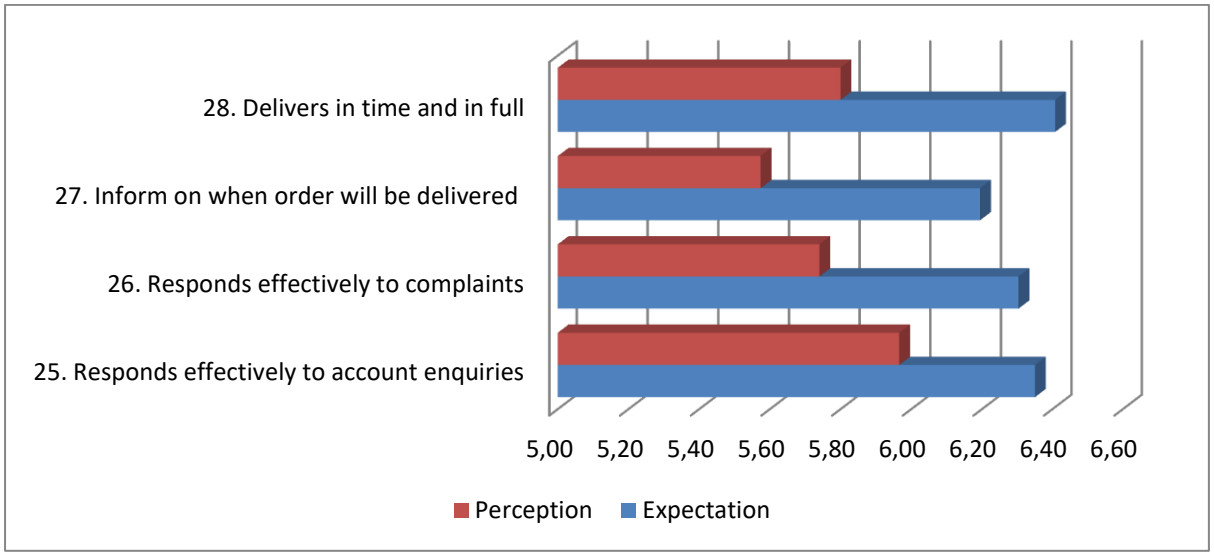
The statements regarding interest in solving product related problems showed the biggest gap in the empathy dimension with a gap of 0.592.

Customers find the ability and willingness of the employees to understand their customer specific needs lower than what is expected. Customers want personal and individual attention at times convenient to them. This can be difficult to achieve should employees be pressed by time and have set targets to make. It is difficult for employees to please everybody as customers do not all have the same personalities.

3.3.2.2.3 Responsiveness

The wholesalers' responsiveness to customers' requests, delivering prompt service and at the same time giving informed information can be seen in figure 3.6. It is notable from figure 3.6 and in table 3.4, this dimension has the most substantial gap of 0.544. This is a clear indication that customers perceive a lack of timeliness and prompt service from the pharmaceutical wholesaler which might put the wholesaler at a disadvantage.

Figure 3.6: Responsiveness

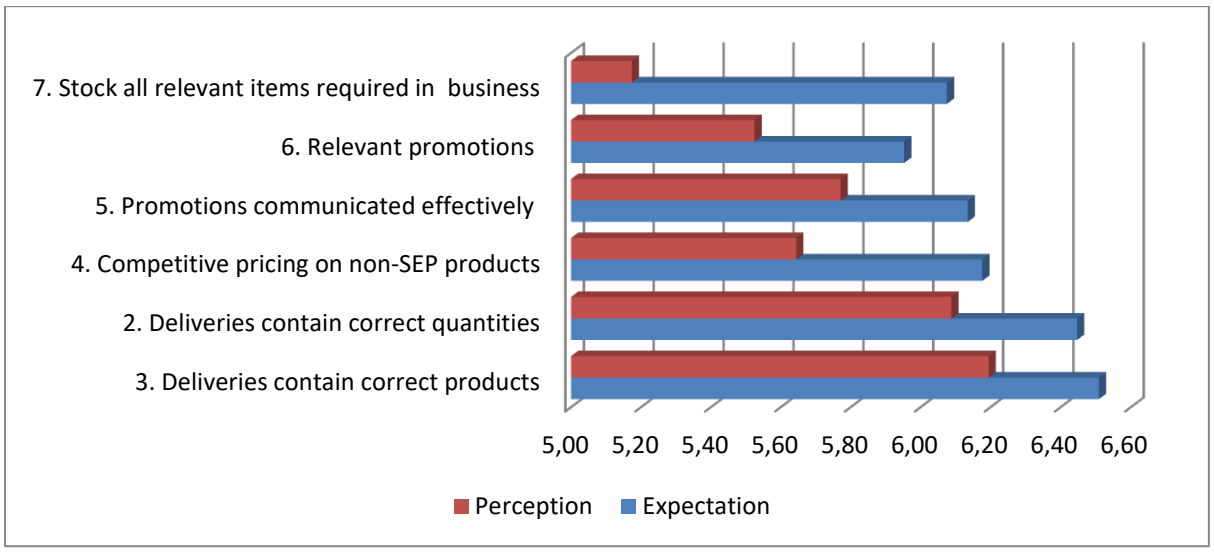


The statements regarding delivering on time and in full showed the second biggest gap in the responsiveness dimension with a gap of 0.608, but at the biggest effect size in this dimension with a value of 0.402 (see Table 3.4). With the price regulation on medicine causing low-profit margins, customers of the wholesaler tend to keep low levels of medicine. This can cause the customers to run out of medicine at a critical time, and wanting the wholesaler to deliver the medicine promptly.

3.3.2.2.4 Reliability

From figure 3.7 it is notable that all the actions related to reliability are below customers' expectations.

Figure 3.7: Reliability



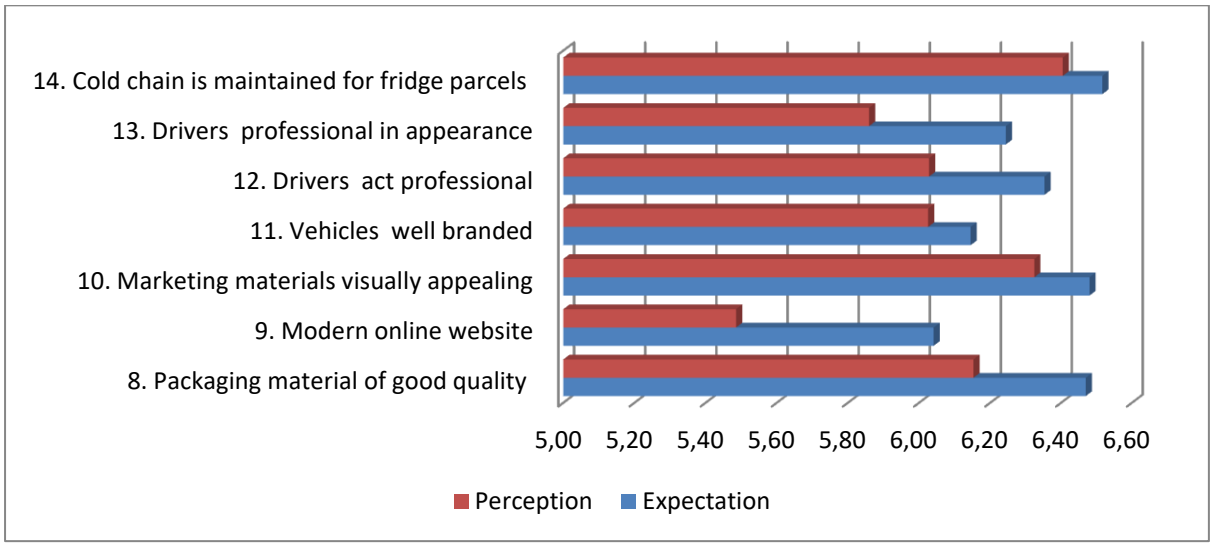
The statements regarding the wholesaler stocking all relevant items required in my business showed the most significant gap of all the statements in the questionnaire with a gap of 0.901. It also has the biggest effect size of all statements with a value of 0.586. The statement regarding the competitiveness of non-SEP prices also raised concerns with a gap of 0.532.

For the pharmaceutical wholesaler to be competitive it is imperative that they provide customers with the customers' whole basket of product needs, at the best price and prompt deliveries. This will prevent competitors from finding gaps that they can use to lure customers away.

3.3.2.2.5 Tangibles

In general, the perceived appearance of packaging materials, marketing materials, equipment and employees have the smallest gap between the customers' expectations and perceptions with an overall gap of 0.281 (see Figure 3.8).

Figure 3.8: Tangibles



The packaging of the cold chain parcels had the smallest gap with a value of 0.112. The visual appearance of the vehicles, branding materials and drivers all had smaller gaps between customers' perception and expectation than most other statements in the questionnaire indicating that this has been a focus of the pharmaceutical wholesaler that paid off. It also confirms the fact that the wholesaler's tangible involvement with customers is of significant influence. Customers are known to have

accounts with multiple pharmaceutical wholesalers and it is not known if it may affect their perception and expectation of tangibles.

3.3.2.3 Reliability of antecedents

The Cronbach Alpha (α) coefficient was statistically calculated to determine the reliability of the data about all the dimensions of service quality in the SERVQUAL model. Cronbach's alpha determines the internal consistency or average correlation of items in a survey instrument to gauge its reliability (Bryman & Bell, 2014). An acceptable level of reliability is usually implied by a result of 0.8 and above, although most researchers accept an alpha coefficient of 0.7 as acceptably (Bryman & Bell, 2014). The minimum Alpha coefficient for this research was thus set at $\alpha \geq 0.70$.

Table 3.6 below shows the reliability coefficients for all the antecedents of service quality. All the antecedents have returned very satisfactory reliability coefficients of more than 0.8. This exceeds the minimum coefficient of 0.7 by far and shows excellent reliability and internal consistency of data about each dimension.

Table 3.6: Reliability coefficient

Antecedents	Cronbach Alpha (α)
Reliability	0.884
Tangible	0.894
Assurance	0.920
Empathy	0.897
Responsiveness	0.890
TOTAL	**0.986**

3.3.3 Influence of demographics on the perceived service quality

3.3.3.1 Delivery method

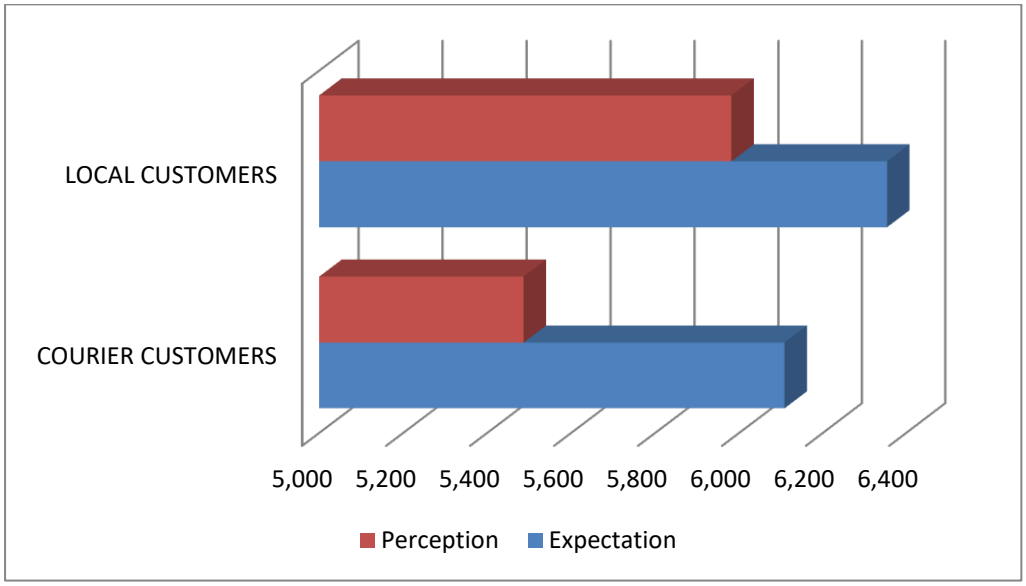
On dividing the customers according to the delivery method, it is evident that the customers receiving stock via courier have lower expectations of overall service than those receiving their inventory with the wholesaler's delivery vehicle and driver. The perceived services from the wholesaler to both customer types are lower than what they expected. The expectations of local customers and courier customers are respectively 6.354 and 6.108 (see table 3.7). Although courier customers' expectations are lower, it is also evident that their perception of service received is

much lower than that of local customers with a gap of 0.622 between expected service and perceived service compared to a gap of 0.372 of local customers.

Table 3.7: Courier and Local customers

	EXPECTATION	PERCEPTION	DIFFERENCE
Courier customers	6,108	5,487	0,622
Local customers	6,354	5,982	0,372

Figure 3.9: Courier and Local customers



3.3.3.2 Type of customer

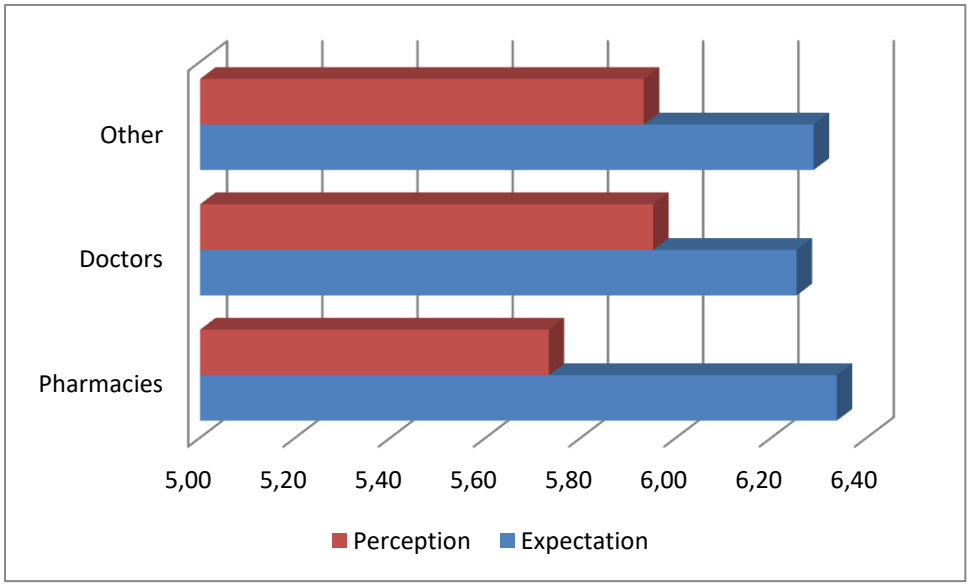
In this study customers were divided into three categories which include pharmacies, doctors and other (other wholesalers, hospitals, clinics, veterinary facilities, health shops, homeopaths and export customers).

The result as seen in table 3.8 and figure 3.10 indicate that pharmacies have the highest expectations from the pharmaceutical wholesaler and also the lowest perceptions with a gap of 0.605. It is known that many pharmacies have accounts with multiple pharmaceutical wholesalers and may have affected their perception and expectation of service quality from the pharmaceutical wholesaler. Doctors seem to be the most pleased with the service received from the pharmaceutical wholesaler with a gap of only 0.301 between the two variables.

Table 3.8: Pharmacies, Doctors and Other

	Expectation	Perception	Difference
Pharmacies	6,337	5,733	0,605
Doctors	6,253	5,952	0,301
Other	6,289	5,932	0,356

Figure 3.10: Pharmacies, Doctors and Other



3.3.3 Exploratory factor analysis

Successful exploratory factor analysis requires data that is suitable for multivariate analysis. Typically, an adequate sample and sufficiently low sphericity are data properties that are required to successfully extract meaningful factors from the data. This study employed the Kaiser-Meyer-Olkin tests to determine the suitability of the data for factor analysis.

3.3.4.1 Kaiser-Meyer-Olkin and Bartlett's test

The adequacy of the sample (in this case the number of respondents in the population) was determined by calculating the Kaiser-Meyer-Olkin measure of sampling adequacy. Also, the Bartlett test of sphericity was used to determine the sphericity within the data. Low sphericity (below 0.05) and high sample adequacy (≥0.70) is needed to determine if the data is suitable to be used for exploratory factor analysis (Williams *et al.*, 2010:10). The results are shown in table 3.9.

Table 3.9: Bartlett's test and Kaiser-Meyer-Olkin measure

Kaiser-Meyer-Olkin and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.963
Bartlett's Test of Sphericity	Approx. Chi-Square	10133.241
	Df	378
	Sig.	0.000

The Kaiser-Meyer-Olkin measure displays a value of 0.963, indicating that the sample is adequate. The Bartlett's test of sphericity also returned a favourable value less than the required value of 0.05.

3.3.4.2 Exploratory factor analysis

Three factors were identified with exploratory factor analysis using an orthogonal varimax rotation. According to Beavers *et al*. (2013:10), rotational techniques like Varimax serve to create a more interpretable solution than Principal component analysis because it identifies factors and the communalities without altering the structural relationships, while Field (2009:746) points out that a varimax rotation is particularly suitable for exploratory studies (like this one) because it aims to maximise the variance per factor explained. Field (2009:667) also states that factor loadings of 0.40 and above are considered to be significant and are used in the analysis. The factors and the criteria loading onto each item are presented in table 3.10.

Table 3.10 below indicates that all 28 of the statements loaded onto three factors; all had factor loadings of 0.40 or higher. The table also shows the variance explained and reliability of the factors.

Table 3.11: Factor Analysis

NR	STATEMENT	FACTORS		
		1	2	3
A5(P)	19. Ability to resolve queries	.788		
E2(P)	21. Sincere interest in solving problems	.786		
E1(P)	1. Interest in solving any product related problems	.738		
A4(P)	18. Call centre agents are professional	.713		
A6(P)	20. aims to provide excellent service	.694		
E5(P)	24. Fulfil specific business requirements	.689		
R2(P)	26. Responds effectively to complaints	.677		
E3(P)	22. Call centre is easy to reach	.670		
R1(P)	25. Responds effectively to account enquiries	.659		
R3(P)	27. Inform on when the order will be delivered	.653		
A1(P)	15. Order placing are accurate	.613		
RL6(P)	7. Stock all relevant items required in business	.536		
T5(P)	12. Drivers act professionally		.739	
A2(P)	16. Stock delivered on time		.686	
R4(P)	28. Delivers in time and in full		.678	
RL2(P)	2. Deliveries contain correct quantities		.667	
T4(P)	11. Vehicles well branded		.666	
RL1(P)	3. Deliveries contain correct products		.661	
T6(P)	13. Drivers are professional in appearance		.661	
A3(P)	17. Deliveries incorporate specific business needs		.634	
T7(P)	14. Cold chain is maintained for fridge parcels		.603	
T1(P)	8. Packaging material of good quality		.577	
E4(P)	23. Payment methods are convenient		.536	
RL5(P)	6. Relevant promotions			.712
RL4(P)	5. Promotions communicated effectively			.653
T2(P)	9. Modern online website			.631
RL3(P)	4. Competitive pricing on non-SEP products			.618
T3(P)	10. Marketing materials visually appealing			.598
Percentage of variance explained		**28.31%**	**23.11%**	**16.23%**
Cumulative percentage of variance		**28.31%**	**51.43%**	**67.66%**
Reliability (Cronbach Alpha)		**0.959**	**0.941**	**0.866**

It is noteworthy from the table that a satisfactory cumulative variance is explained by the three factors (67.66%) which exceed the desired variance explained of 60%. Regarding the reliability coefficients for all three factors it is evident that all three of them returned very satisfactory reliability coefficients, exceeding the required coefficient of 0.7 with ease. Factors 1 and 2 have reliability coefficients higher that 0.90, whereas Factor 3 has an alpha coefficient which is higher than 0.8.

Factor 1: Positive employee actions

A total of 12 statements, namely statements number 19, 21, 1, 18, 20, 24, 26, 22, 25, 27, 15 and 7 loaded on factor 1. All the statements under factor 1 deal with positive actions undertaken by the employees to prevent complaints and ensure a good service to customers. The factor is thus labelled as Positive employee actions. Statements 1, 18, 19, and 21 all have factor loadings more than 0.70, suggesting that these statements are regarded as significant by the customers of the pharmaceutical wholesaler. The factor explains a variance of 28.31%. Woods *et al*. (2012:201) conducted a study to examine the relations of organisational commitment and demographic factors with objectively measured absence frequency. The results of this study are supported by Woods *et al.* (2012:202) that organisations can benefit from employees with high organisational commitment and well-being as their positive actions can increase levels of customer satisfaction, generate higher profit, increase productivity, and lower turnover rates. Studies have also shown that organisational commitment and positive employee actions are closely connected to job satisfaction. Combined, these two variables have been used by Harrison *et al.* (2006:307) to examine their association with job performance. Harrison *et al.* (2006:307) based their studies on the compatibility principle in attitude theory and proposed that overall job attitude can provide powerful predictions of more integrative behavioural criteria like absence, lateness and contextual performance. The results showed that there was a positive correlation between the combined variables and job performance, which in turn is positively correlated with business performance. Lower organisational commitment and job satisfaction have also been found to be associated with higher levels of absence, lateness, and turnover, which in turn reduce business performance (Woods *et al*., 2012).

Factor 2: Business process management

Statements 12, 16, 28, 2, 11, 3, 13, 17, 14, 8 and 23 all loaded on factor 2. Only statement 12 has a factor loading above 0.70, but the rest of the statements are well above the cut-off factor loading of 0.40. All the statements relate to business process controls that management set in place to ensure good service quality. The factor identifies business process management; the factor is labelled as such. The factor explains a variance of 23.11%. Ziemba and Obłąk (2013:15) studied the critical success factors for successful Enterprise Resource Planning (ERP) systems implementation in public administration. This identified factor is in support of the

results achieved in a study by Ziemba and Obłąk (2013:16) as they argue that organisations are constantly looking for ways to increase customer satisfaction, increase efficiency, improve product quality, and reduce costs. Organisations have realised that it lies in the performance of their processes. Hsu *et al.* (2015:927) examined the relative importance of ERP system quality has on the service quality rendered to customers. Their findings are similar to that of Ziemba and Obłąk (2013:12) concluding that service quality was found to significantly interact with information quality and system quality.

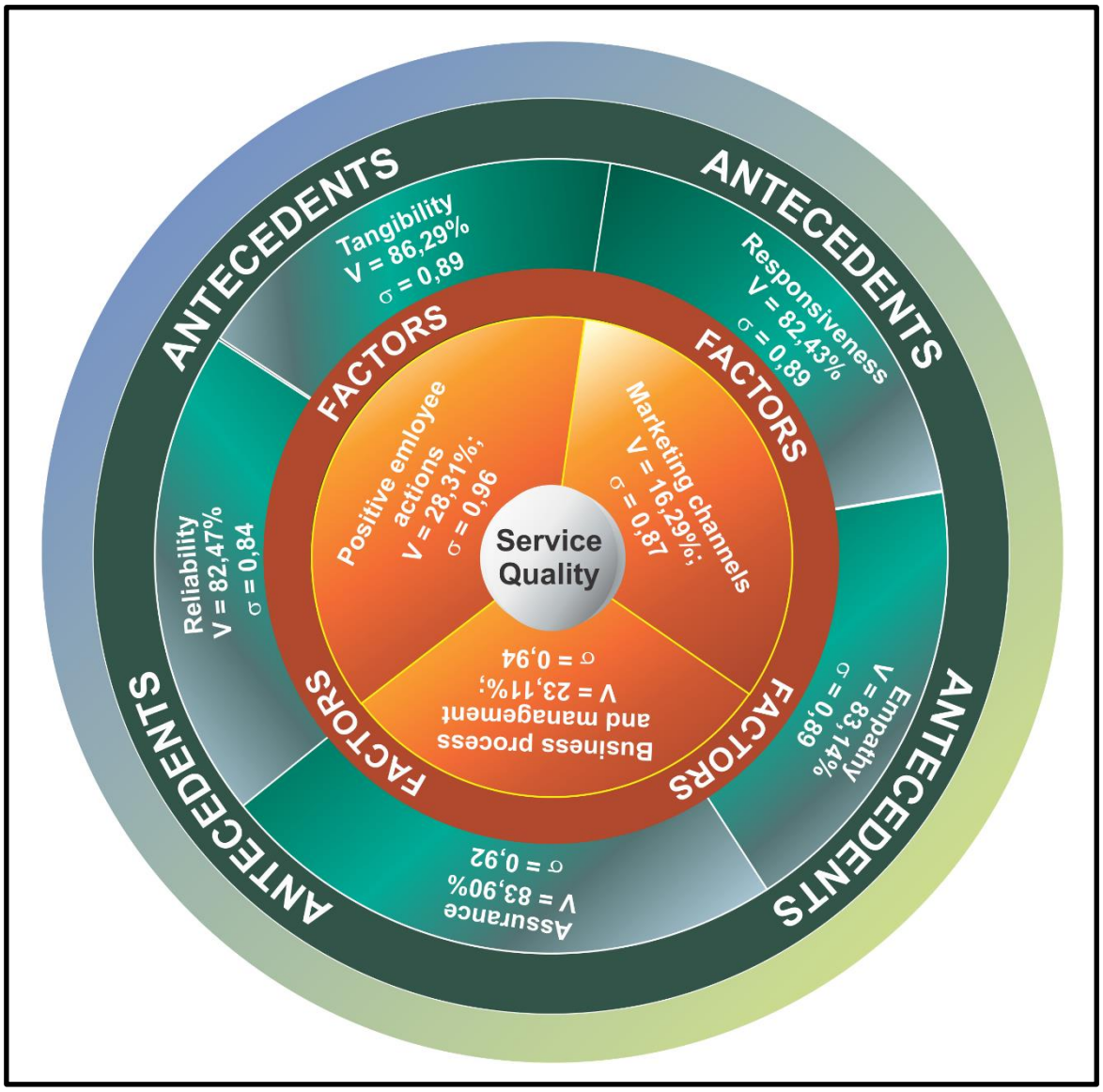
Factor 3: Marketing channels

Five statements, namely: 6, 5, 9, 4 and 10 loaded on factor 3. These statements describe the marketing channels the pharmaceutical wholesaler use to connect with customers. The factor is thus labelled as marketing channels because it shows the effect organisational marketing channels have on the customers' service perceptions of the pharmaceutical wholesaler. Statements 6, reflects a factor loading above 0.70 suggesting that the customers regard relative promotions as very important. The factor has a variance of 16.23%. The findings are supported by Aghazadeh (2015:127) in a study on the development of a comprehensive model for Integrated Marketing Strategy, that argues that marketing strategies and channels used can be a competitive advantage as it can attract customers, create value for customers, satisfy customers, and encourage customers to return.

3.4 AN INTEGRATED MODEL TO MEASURE CUSTOMER SERVICE AT A PHARMACEUTICAL WHOLESALER

The model to measure customer service in this study was developed in three stages. In the first stage the model employed a sound theoretical basis to identify the relevant customer service measuring criteria to the wholesale pharmaceutical industry. These criteria were classified into the five customer service antecedents, namely tangibility, responsiveness, assurance, reliability and empathy as per the SERVQUAL model in the second stage. The third and final stage of the model construction then subjected the measuring criteria to exploratory factor analysis to identify the latent variables of customer service at a pharmaceutical wholesaler. Three factors were identified. The model is shown in Figure 3.11.

Figure 3.11: An integrated model to measure customer service at a pharmaceutical wholesaler



The model shows that all five of the customer service antecedents are highly reliable; they have Cronbach alpha coefficients of more than 0.80. Also, these antecedents explain high percentages of variance each (exceeding 80% variance explained in all the cases). In practice this means that each antecedent does measure the service quality antecedent well. Regarding the factors (or latent variables), all three also have high Cronbach alpha coefficients and they explain a satisfactorily cumulative variance of almost 68%.

This model is a practical tool for use by managers if they want to measure the customer service of a pharmaceutical wholesaler. The model could be highly productive if these managers apply the findings of their measurements to improve

poor service areas while also trying to maintain the excellent service areas. However, without measuring, there can be no accurate managerial intervention to enhance the quality of service. Herewith lies the benefit of this study; it provides a reliable tool to measure customer service in practice that can be used to improve the competitive stance of a wholesaler in a highly competitive environment where no product differentiation exists.

3.5 SUMMARY

The objectives of this chapter were to describe the research design and methodology of the study and to report on the empirical findings of the study.

The study population and technique used to collect the data were discussed. This study targeted the population and thus no sample was drawn. The study population consisted of a total of 4468 customers of the pharmaceutical wholesaler. The chapter discussed the statistical techniques applied. The Cronbach Alpha coefficient determined the reliability of the data. The sampling adequacy was tested by using the Kaiser Meyer Olkin Measure of Sampling Adequacy. Descriptive- and Inferential statistics were conducted to measure the mean and standard deviations of the different service quality dimensions.

Additionally, it was used to compare their levels of importance for the customers and the satisfaction the customers have with the quality of service received from the pharmaceutical wholesaler. The collected data from the Exploratory Factor Analysis and reliability of the SERVQUAL dimensions were validated and identified a number of factors of the measuring tool. Exploratory Factor Analysis was used to determine the underlying or latent needs of service quality influences.

The chapter also presented systematically and in detail the findings, analysis, discussion and interpretation of the empirical results of this research in the form of tables and figures to answer the research objectives and questions. The analyses and interpretation of the findings were presented such that the empirical goals of the study were achieved. The questionnaire's reliability and validity were highlighted. The chapter then provided preliminary analyses including descriptive statistics and a description of the demographic characteristics of the population used in the study. Using an exploratory factor analysis, three determinant dimensions were extracted

that constitute pharmaceutical wholesaler service quality. These dimensions in accordance to their importance are positive employee actions, business process management, and marketing channels. Ultimately, a conceptual model to measure service quality in the pharmaceutical wholesale industry was developed and proposed.

The final chapter concludes the study by providing recommendations, areas for future research and a summary of the study.

CHAPTER 4: CONCLUSIONS AND RECOMMENDATIONS

4.1 INTRODUCTION

Chapter 4 is the final chapter of the study. This chapter aims to conclude the study, to formulate recommendations and to postulate possible areas for further research. The study also presents a summary of the findings on the customer service investigation and ultimately an overview of the study.

4.2 CONCLUSIONS

The South African pharmaceutical wholesale industry is highly competitive and subject to various macro- and microeconomic forces. The South African pharmaceutical wholesalers are negatively influenced by the Single Exit Pricing (SEP) regulations of Government, which limits profit margins for the companies in the industry and makes it impossible for pharmaceutical wholesalers to compete with the prices of medicine. It was also found that the South African pharmaceutical wholesalers' industry is a highly competitive and saturated market.

The pharmaceutical wholesaler and its customers form part of a very regulated and competitive market where a high quality of service is expected; making the interaction and service received from the wholesaler all the more critical. The quality of service received from the wholesaler can strongly affect the service a patient receives from the wholesaler's customer and can, as mentioned by Mehralian *et al*. (2016:979), directly affect the business performance, profitability, customer loyalty, and customer satisfaction of the wholesaler's customers (Mehralian *et al.*, 2016:979; Omar *et al.*, 2015:88).

This study succeeded to gain knowledge of how customers of the pharmaceutical wholesaler judge service quality and it also determined which gaps the pharmaceutical wholesaler should address to provide a higher quality service that can meet customers' expectations. This study helps the pharmaceutical wholesaler to understand the significant issues which are affecting their performance. The investigation revealed that the pharmaceutical wholesaler had a tremendous opportunity to enhance their service quality. In future, any research concerning the pharmaceutical wholesaler's service measurement should make use of the

SERVQUAL measuring instrument. This would also facilitate direct comparative analysis with the current service levels.

The study also reveals how a modified SERVQUAL instrument can help pharmaceutical wholesalers identify the service characteristics that are considered important by their customers' point of view. Such a study can help the managers of the pharmaceutical wholesaler to make informed business decisions. The data for this study were collected from customers of a specific pharmaceutical wholesaler in South Africa. Hence, service quality measurements for another pharmaceutical wholesaler, especially in other countries, may not necessarily follow the same pattern.

In general, the SERVQUAL model was found to be suitable for measuring customer satisfaction with services rendered by a pharmaceutical wholesaler. The gap between customers' expectations and perceptions is notable with the method. The questions were slightly edited and modified to suit the pharmaceutical wholesale industry in South Africa.

The results concluded that assurance, empathy, responsiveness, reliability and tangibility are all critical factors affecting the pharmaceutical wholesaler's service quality, coinciding with Parasuraman *et al*. (1988:14) and Mehralian *et al*. (2016:978). The fact that the customers' perceived service quality affects the level of satisfaction is supported and proved in this study corresponding with earlier studies of Mehralian *et al*. (2016:979), Omar *et al.* (2015:87), and Niaz *et al*. (2019:27) and other works.

The reliability coefficients for all data employed in the dimensions of the SERVQUAL measuring instrument returned a very satisfactory reliability coefficient of more than 0.8. This shows excellent reliability and internal consistency of the data regarding each of the dimensions. Again, any research concerning the pharmaceutical wholesaler regarding customer service measurement should use the SERVQUAL measuring instrument as the foundation for the analysis since it is now tried and tested statistically for application in this specific business environment.

The individual perceived service quality scores (mean values) are all below the expected service quality scores, showing that the pharmaceutical wholesaler does not meet their customers' service quality expectations. Management should take note of this and start addressing it. Management can begin by addressing the dimension with the most significant gap and practical significance, which is responsiveness. Customers perceive a lack of timeliness and prompt service from the pharmaceutical wholesaler which might put the wholesaler at a disadvantage.

No individual gap showed large levels of practical significance while one did show a medium level of significance and twenty-three moderate levels of relevance. All the service dimensions showed a moderate practical significance.

Finally, the proposed customer service research model provides relevant management information and appears to be successful in determining the quality of service of a pharmaceutical wholesaler.

4.3 RECOMMENDATIONS

The following recommendations concerning the service quality of the pharmaceutical wholesaler can be highlighted.

- The results of this study should be made available to the respective departments of the pharmaceutical wholesaler as well as the responsible managers of each department so that they can all be aware of the current service levels rendered.
- The manager of each department should further implement a series of action plans to maintain good performance areas while also trying to improve the areas of poorer service delivery.
- This investigation can form the basis of establishing a customer service culture at the pharmaceutical wholesaler and can help to accelerate further expansion of the culture. An overall uniform pursuit and approach to customer satisfaction are recommended to the establishment of the customer service culture.
- Client service should further be formed part of the pharmaceutical wholesaler's strategic goals and time and effort should be allocated to the follow-up of research results.

- Some internal actions to improve service levels are the training of staff and performance incentives.
- Employees that come in direct contact with customers should primarily focus on showing sincere interest and willingness to assist customers and should also have the knowledge to do so.
- It is also recommended that this study is conducted again in the future to facilitate direct comparative analysis of the current service levels.
- Finally, it is recommended that future researchers investigating service quality take note of this research model. The model may not be used as is for their project, but can provide a cognitive roadmap for innovative thinking and future studies.

4.4 AREAS FOR FUTURE RESEARCH

Possible other research designs could have been used that would also have yielded handsome information on service quality in the pharmaceutical industry. These possibilities are:

- Alternatively, the study could also have been conducted on one (or more groups selected) of the types of customers by measuring the quality of service, for example, received by community pharmacies, providing similar data as the chosen unit of analysis. This would have had a shortcoming though of not providing a holistic customer service delivery view of the wholesaler.
- A study could also have been conducted by gathering data from a random combination of customers of pharmaceutical wholesalers in South Africa. Such a study will measure service quality of all wholesalers to their customers and not that of a specific wholesaler. The results will then reflect service quality levels present in the pharmaceutical wholesale environment and will be of value to all wholesalers, and not only a specific one. The shortcoming would be that the generalised approach will not be able to provide accurate managerial information to any particular wholesaler.
- Comparative analysis in both the cases above could have been a third avenue of research. Here the level of service quality delivered to the different groups of customers could be compared to determine if some groups receive better service quality, and if so why? This could render management to deliver a

differentiated service quality strategy to serve best each of the four diverse groups of customers a wholesaler has.

4.5 SUMMARY

The research gave focus to the measurement of service quality of a pharmaceutical wholesaler in South Africa. The study consists of four chapters.

Chapter 1 sets the background, problem statement and research propositions of the study. Some pharmaceutical wholesalers distribute medical supplies throughout South Africa, and similarly to any other business, they need to remain competitive; here typical strategic competitive thrusts like customer service and satisfaction are employed to compete actively in the health market. Pharmaceutical wholesalers and its customers operate in a very regulated and competitive market where a high quality of service is expected; making the interaction and service received from the wholesaler all the more critical.

As service quality can have a significant impact on the financial performance of the pharmaceutical wholesaler, a study was needed to determine the current perceived service quality. It is further a necessity to evaluate the impact of high service quality on customer satisfaction. In line with the stated problem, the primary objective (§1.3) and the secondary objectives of the study were formulated.

The primary objective of this study was to measure the service quality at a pharmaceutical wholesaler in South Africa. To achieve the primary objective, the following secondary objectives were formulated and examined:

- Determine the perceived level of customer service the retail customers receive from the pharmaceutical wholesaler;
- Determine the perceived level of customer service the retail customers expect from the pharmaceutical wholesaler;
- Determine the difference (Gap 5) between the service levels;
- Identify possible correlations between the general business and demographic variables and the service gaps;
- Determine the factors that influence the quality of service provided by a pharmaceutical wholesaler; and to
- Formulate managerial interventions to improve service levels to customers.

In chapter 2 the literature research was done and the proposed model to measure the service quality was compiled and explained. The chapter commenced with an industry profile of the South African Pharmaceutical market in Section 2.2. A review of the literature on the structure of the pharmaceutical industry and the regulatory framework in the supply of pharmaceutical products with specific focus on the role and function of the pharmaceutical wholesaler in the supply chain were highlighted. After that, the chapter reviewed the literature on service quality about the definition and unique characteristics of services. The SERVQUAL model of service quality has a full use and acceptance among service quality scholars and practitioners and thus were critically analysed.

Chapter 3 sets out the empirical research results and research methodology. The chapter outlined and described the research design and methods followed in gathering and analysing the data for the empirical section of this study together with the empirical research results of this study. The chapter provided discussions, arguments and justifications of the research approach, the study population identified and used, and the instrument used in the collection and analyses of the data. The study concludes that there is value in the proposed service quality model and that the model should be implanted at the pharmaceutical wholesaler as part of their customer service strategy. The model has delivered satisfactory results for measuring the service quality of the pharmaceutical wholesaler and, consequently, can be extended to other pharmaceutical wholesalers or businesses in the healthcare industry. In general, the SERVQUAL model was found to be suitable for measuring customer satisfaction with services rendered by a pharmaceutical wholesaler. The gap between customers' expectations and perceptions is notable with the method. The questions were slightly edited and modified to suit the pharmaceutical wholesale industry in South Africa.

Using an exploratory factor analysis, three determinant dimensions were extracted that constitute pharmaceutical wholesaler service quality. These dimensions in accordance to their importance are positive employee actions, business process management, and marketing channels. Ultimately, a conceptual model to measure service quality in the pharmaceutical wholesale industry was identified and proposed.

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APPENDIX A: CUSTOMER SERVICE SURVEY

SECTION A: BACKGROUND

1. The pharmaceutical wholesaler is your 1st, 2nd or 3rd choice pharmaceutical wholesaler

1st	2nd	3rd	Other

2. You receive stock from the pharmaceutical wholesaler via

Driver of the Pharmaceutical wholesaler	Courier

3. You are working at a:

Pharmacy	Doctor's practice	Other

SECTION B: EXPECTATION/ACTUAL

There are 28 statements in the following questionnaire, each with two answers. There are no right or wrong answers.

You will be asked to indicate the number that describes your **expected** and **actual** service received from the Pharmaceutical Wholesaler.

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

Regarding the statements listed below; indicate in the column that states **Expectation**, the level of service you expect at an **excellent** pharmaceutical wholesaler, and the importance of the excellent pharmaceutical wholesalers to possess these features described in the statements.

In the column that states **Perception**, indicate the **actual** quality of service that you receive at **Pharmaceutical Wholesaler**, and to what extend does the Pharmaceutical Wholesaler comply with these statements.

By choosing a 7, you will indicate that you strongly agree (excellent) and a 1 will indicate that you strongly disagree (poor). If you feel that the expected and/or actual service provided was between excellent and poor, then indicate 2-6.

Expectation / Importance		**Statement**	**Actual Experience / Perception**
1 2 3 4 5 6 7	E	1. The Pharmaceutical Wholesaler shows sincere interest in solving any of your product related problems.	1 2 3 4 5 6 7
1 2 3 4 5 6 7	R L	2. Deliveries contain correct quantities of products as per order.	1 2 3 4 5 6 7
1 2 3 4 5 6 7	R L	3. Deliveries contain correct products as ordered.	1 2 3 4 5 6 7
1 2 3 4 5 6 7	R L	4. The Pharmaceutical Wholesaler offers competitive pricing on non-SEP products.	1 2 3 4 5 6 7
1 2 3 4 5 6 7	R L	5. Promotions are communicated effectively.	1 2 3 4 5 6 7
1 2 3 4 5 6 7	R L	6. Promotions are relevant and market related.	1 2 3 4 5 6 7
1 2 3 4 5 6 7	R L	7. The Pharmaceutical Wholesaler stock all relevant items required in my business.	1 2 3 4 5 6 7
1 2 3 4 5 6 7	T	8. The packaging material used to transport products is of good quality.	1 2 3 4 5 6 7
1 2 3 4 5 6 7	T	9. The Pharmaceutical Wholesaler has a modern online website.	1 2 3 4 5 6 7
1 2 3 4 5 6 7	T	10. Communication material such as marketing, invoices and statements are easy to read and understand.	1 2 3 4 5 6 7
1 2 3 4 5 6 7	T	11. The vehicles used for transportation are well branded.	1 2 3 4 5 6 7

1 2 3 4 5 6 7	T	12. Drivers delivering pharmaceutical products act professional.	1 2 3 4 5 6 7
1 2 3 4 5 6 7	T	13. Drivers delivering pharmaceutical products look presentable and professional in appearance.	1 2 3 4 5 6 7
1 2 3 4 5 6 7	T	14. Cold chain is maintained for fridge parcels.	1 2 3 4 5 6 7
1 2 3 4 5 6 7	A	15. Order placing by telesales agents is accurate.	1 2 3 4 5 6 7
1 2 3 4 5 6 7	A	16. If I order within my cut-off parameters, my stock is delivered on time.	1 2 3 4 5 6 7
1 2 3 4 5 6 7	A	17. Deliveries incorporate my specific business needs.	1 2 3 4 5 6 7
1 2 3 4 5 6 7	A	18. Call centre agents are always professional.	1 2 3 4 5 6 7
1 2 3 4 5 6 7	A	19. Call centre agents have the ability to resolve my queries.	1 2 3 4 5 6 7
1 2 3 4 5 6 7	A	20. The Pharmaceutical Wholesaler aims to provide excellent service to its customers.	1 2 3 4 5 6 7
1 2 3 4 5 6 7	E	21. When I have a problem, The Pharmaceutical Wholesaler shows a sincere interest in solving it.	1 2 3 4 5 6 7
1 2 3 4 5 6 7	E	22. The call centre is easy to reach.	1 2 3 4 5 6 7
1 2 3 4 5 6 7	E	23. The Pharmaceutical Wholesaler has payment methods that are convenient to me.	1 2 3 4 5 6 7
1 2 3 4 5 6 7	E	24. The Pharmaceutical Wholesaler personnel fulfil my specific business requirements.	1 2 3 4 5 6 7

1 2 3 4 5 6 7	R	25. The Pharmaceutical Wholesaler responds effectively within a reasonable timeframe to my account enquiries.	1 2 3 4 5 6 7
1 2 3 4 5 6 7	R	26. The Pharmaceutical Wholesaler responds effectively within a reasonable timeframe to my complaints.	1 2 3 4 5 6 7
1 2 3 4 5 6 7	R	27. The call centre agents are able to inform customers on when an order will be delivered.	1 2 3 4 5 6 7
1 2 3 4 5 6 7	R	28. The Pharmaceutical Wholesaler delivers in time and in full.	1 2 3 4 5 6 7

Suggestions:

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THANK YOU FOR YOUR TIME TO COMPLETE THE SURVEY

APPENDIX B: EDITOR'S CERTIFICATE

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To whom it may concern

Re: Confirmation of language edit, typography and technical precision

The dissertation **Service quality of a pharmaceutical wholesaler in South Africa** by **H Barnard (21184283)** was edited for language, typography and technical precision. The referencing and sources were checked as per NWU referencing guidelines (Harvard Style).

Final, last minute corrections remain the responsibility of the author.

Antoinette Bisschoff

BA Languages (UPE – now NMU); MBA (PU for CHE – now NWU); Translation and Linguistic Studies (NWU)

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Precision ... to the last letter