UNIVERSITY OF KWAZULU-NATAL

THE POTENTIAL OF CONTACT LENSES AS A VEHICLE TO GROW THE OPTOMETRIC INDUSTRY IN SOUTH AFRICA

By

Sandesh Srikissoon

200303272

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Supervisor: Mr M E Hoque

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DECLARATION

I, Sandesh Srikissoon, declare that,

(i) The research reported in this dissertation, except where otherwise indicated, is my original research.

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ABSTRACT

Background: In the South African Optometric Industry, Medical Aid Administrators govern output prices while optical suppliers govern input prices. This poses difficulty for Optometrists in adjusting their pricing structure to meet annual inflation rates. Each year the rental of business premises, staff salaries, cost of supplies and stock increase, while annual turnover does not increase in proportion to the increase of such overhead costs. The primary focus of this study was to determine if the contact lens market in South Africa is a potential source for growing revenues at a practice level.

Methodology: Two questionnaires were formulated, a questionnaire for optometrists and another for consumers. The objectives of the study were: 1) To determine if optometrists are of the opinion that the profit margin is likely to decrease over time; 2) To establish if optometrists actively prescribe contact lenses as an aid to vision with the view of growing revenues. (To determine if optometrists view contact lenses as a means to increasing revenues); 3) To establish a consumer standpoint on contact lenses. Descriptive statistics and Chi-Squared analysis were performed to analyze the data.

Results: Regarding the optometrists survey, 190 people viewed the questionnaire, 94 people started the questionnaire and 64 people completed the questionnaire. The completion rate of the survey was 68%. Regarding the consumer survey, 481 people viewed the questionnaire, 283 people started the questionnaire and 245 people completed the questionnaire. The completion rate of the survey was 86%. It was found that optometrists were of the view that profit margins were likely to decrease over time. At the time of completing the survey more optometrists did not actively prescribe contact lenses as a means to increasing revenues. However optometrists were of the view that actively prescribing contact lenses as a means to increasing revenues would be successful. From the consumer survey, consumers were willing to use and purchase contact lenses if given the option.

Conclusion: The study concluded that contact lenses have the potential to grow the optometric industry in South Africa.

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CHAPTER 1 – OVERVIEW OF THE STUDY

1.1 Introduction

Since the beginning of time, mankind has been blessed with the gift of vision. Of all the organs within the human body that can be transplanted, the eyes are not one of them. Eyesight is viewed as a superior sense in human beings as, if a person is asked to choose between hearing and eyesight, the majority would choose eyesight. The sense of sight allows people to learn more about the world surrounding them than any of the other four senses. The eyes are used in almost every activity performed by human beings. It is the responsibility of the optometrist to look after the wellbeing of people's eyesight by providing people with aids to vision that are technologically up to date and meet the requirements of individuals needs.

Globally, optometrists provide people with vision correction in the form of spectacles and contact lenses. The optometric industry has, due to the introduction of new technologies, progressed significantly over the past ten years making it possible to correct more vision disorders with new aids to vision. Spectacles are essential in all cases that require vision correction while contact lenses have always been a popular choice for many ever since its introduction 1887 when contact lenses were first made from glass. Since then the contact lens industry has transformed due to technology making it possible to create new materials for contact lens manufacturing such as silicone hydrogel (a soft breathable contact lens material) that is currently available today. According to Baird's data (2013), the global contact lens industry is estimated to be worth 7.6 billion dollars.

According to The Vision Impact Institute (2014) 75% of the population of the United States of America have vision correction. Nichols (2014) noted that in 2013, approximately 37 million people wear contact lenses in the United States of America. The contact lens market varies from country to country with the proportion of contact lenses wearers being lower in developing countries such as South Africa, thus this study aimed to explore the potential of contact lenses as a vehicle to grow the optometric industry in South Africa.

1.2 Problem Statement

In the South African Optometric Industry, Medical Aid Administrators govern output prices while optical suppliers govern input prices. This poses difficulty for optometrists in adjusting their pricing structure to meet annual inflation rates. Each year the rental of business premises (where applicable), staff salaries, cost of supplies and stock increase, while annual turnover does not increase in proportion to the increase of such overhead costs. Many optometrists may find that turnover is fairly constant to previous years yet the profit margin has decreased in comparison to previous years. The number of optometrists in practice is increasing hence more optometrists are competing for the same pool of patients. This poses a further hindrance to the growth of the business at a practice level hence optometrists must explore new ways of growing revenues.

The primary focus of this study was to determine if the contact lens market in South Africa is a potential source for growing revenues at a practice level. (Gross revenue at practice level in the United States of America was 33.6% over the past 5 years (Nichols, 2014)). Given that South Africa is a developing country, the contribution in terms of revenue at a practice level is significantly lower than that of developed countries such as the United States of America.

There exists a gap in the number of people wearing spectacles and contact lenses, as according to the British Contact Lens Association, “contact lenses are capable of correcting almost all eyesight problems”, hence showing that almost all spectacle wearers are candidates for contact lenses. Contact lenses wearers still require a pair of spectacles. This study will aim to show that by actively prescribing contact lenses, optometrists in South Africa are able to grow revenues at a practice level.

1.3 Research Questions

Below are the research questions for this study:

- Are Optometrists of the view that profit margins are likely to decrease over time?
- Do Optometrists actively prescribe contact lenses as an aid to vision with the view of increasing revenues?
- Are consumers willing to use and purchase contact lenses if given the option?

1.4 Objectives of the Study

In this study, research will be conducted to assess how South African Optometrists view the Optometric Industry in South Africa and to ascertain their opinions on growing the industry as well as to assess the consumer standpoint on contact lenses in South Africa. The objectives for this study are as follows:

- To determine if Optometrists are of the view that profit margins are likely to decrease over time.
- To establish if Optometrists are actively prescribing contact lenses as an aid to vision with the view of increasing revenues. (To determine if optometrists view contact lenses as a means to growing revenues.)
- To establish if consumers are willing to use and purchase contact lenses if given the option.

1.5 Significance of the Study

In an ever changing economy, where competition has increased significantly in the market place and technology is at the forefront as a business driver, the medical profession has also been impacted upon as consumers expect practitioners to be technologically up to date as well as provide exceptional healthcare. Technology in optometry has improved vastly over the past ten years more so in the field of contact lenses, making it possible for many more consumers that require vision correction to be presented with the option of contact lenses.

The study serves to benefit optometrists, contact lens companies in South Africa and the general population of South Africa that require vision correction as the results of this study may encourage optometrists to offer patients more in terms of vision correction.

1.6 Scope of the Study

The study was conducted across South Africa. The approach was via two channels, firstly a questionnaire sent out to practicing optometrists and the second via another questionnaire aimed at the general consumer population. This study required input from practicing optometrists. The contact lens climate in South Africa can be described as somewhat skew as not all optometrists dispense all contact lenses i.e. some optometrists (mostly independent) only supply and work with one or two contact lens companies hence the scope to grow is lessened due to the fact that certain contact lenses available from a specific manufacturer can fit a need for a patient, hence if the optometrist does not deal with that company the need of the patient will not be serviced and the patient will go elsewhere. Due to this skewed nature of the contact lens market, this study will span a large geographical area as possible.

The general consumer population was also surveyed and asked to provide input on their acceptance of contact lenses and their opinion of contact lenses as a means to vision correction.

1.7 Structure of the Thesis

Chapter 1: This chapter presents an overview of the study. The problem statement, research objectives, significance and scope of the study are presented in this chapter.

Chapter 2: This chapter attempts to discuss all available literature that was pertinent to the study based on the research questions formulated.

Chapter 3: The research methodology which was adopted and the reasons for such methodology is discussed in detail in this chapter.

Chapter 4: The results of the study and a discussion thereof are presented in this chapter. The results of both surveys are discussed in detail with chi-squared analysis to show associations where applicable.

Chapter 5: This chapter presents the conclusion to the study and discusses the recommendations that stem from the study.

1.8 Conclusion

In this chapter, the researcher has provided an overview of the subject matter highlighting issues within the optometric industry in South Africa. The problem statement has been formulated and a definition of the problem statement was provided. The research questions, objectives, significance and scope of the study together with the structure of the thesis have been presented in this chapter.

The next chapter will provide an overview of literature relevant to the study.

CHAPTER 2 –REVIEW OF LITERATURE

2.1 Introduction

Optometry in South Africa is fast becoming a saturated industry. Competition is on the increase as with the advent of franchises, buyer power increases and many independent Optometrists find themselves losing “customers” to larger groups on the basis of price and sometimes service. A segment of optometry that is increasing in developing countries is the contact lens segment. Some optometrists are putting together a package or bundle that includes spectacles and contact lenses to make the concept more attractive to the first time wearer of contact lenses. The contact lens market appears to be a viable option to grow the optometric industry in South Africa.

2.2 The Global Visual Statistics

At some stage of life, the average human being would require visual correction. There are an estimated 7 billion people in the planet. According to research conducted by The Vision Impact Institute (2012), an estimated 4.2 billion people require visual correction of which around 1.7 billion people are able to receive vision correction through spectacle lenses and contact lenses. There remains an estimated 2.5 billion people worldwide who require visual correction but remain uncorrected. 30% of children worldwide have vision difficulties that could impact their lives negatively. 33% of the working population has visual difficulties that have the potential to reduce their professional performance by up to 20%. 23% of drivers worldwide require some form of visual correction and 59% of road accidents have been related to visual difficulties.

The current population estimates for Africa indicate that there are 1.1 billion people in Africa (Wikipedia, 2013). There are 54 million people in South Africa (Statistics South Africa, 2014). By applying the percentages given above to South Africa, it is estimated that 32 million people in South Africa require vision correction at present.

2.3 Optometry – A Declining Industry

In South Africa, there are 3527 registered optometrists, Health Professions Council of South Africa (2014), (Appendix 5). Each optometry practice, specifically in the suburban areas can only reach a threshold of a certain amount of patients as market saturation and groups of practices increase the competition. As stated in the problem statement, from an internal perspective, rental (where applicable), staff salaries and the cost of goods increase year on year. Ultimately, as more optometrists graduate from universities and more optometry practices develop, we have more optometrists competing for the same pool of customers. In many business environments where such is the case, the net profit remains constant or shrinks while a select few are able to better compete and thereby grow profits. Optometry in South Africa may therefore be considered a declining industry in terms of profit margins and not in terms of supply and demand.

According to Investopedia (2014), a declining industry is: "An industry where growth is either negative or is not growing at the broader rate of economic growth. There are many reasons for a declining industry: consumer demand may be steadily evaporating, the depletion of a natural resource may be occurring, or there may be the emergent substitutes because of technological innovation." (Figure 1.1) Aggressive price competition is among the key features of declining industries (Grant, 2010). Thus there exists a need to explore other avenues of growth in the industry.

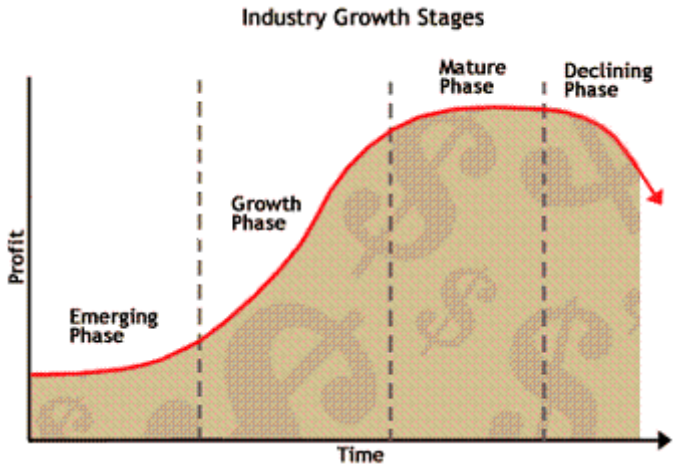

Figure 1.1 Industry Life Cycle (Source: Investopedia)

Elizabeth Spaulding of BAIN & COMPANY (2012) stated the following as factors affecting the market share of independent optometry based on the USA market and on the international market in a report titled “Do you see what we see? The future of independent optometry”:

- The increase in large chains that have more innovative and aggressive marketing strategies than independent optometrists
- Increased comfort in online consumer shopping
- A shift from personalized shopping experiences to a retail environment that is efficient
- Consumer desire for greater transparency in terms of price

The report identifies that “Independent Optometry faces a major challenge.” In the UK, independent and small chain optometrists have lost 4% market share from 2007 to 2009, while in Australia independent optometry market share was estimated to have dropped from 73% to 55% during 2004 to 2009. One group of consumers, referred to as “Hybrid Spenders”, who were involved in the survey stated that they prefer to have their eyes tested at independent optometrists due to personal preference and individual needs; however they purchase contact lenses and spectacle lenses where the cost is lowest. This highlights the impact of online shopping and large chain groups on the retail aspect of optometry.

The BAIN & COMPANY consumer survey revealed that consumers will be willing to do a lot more online purchasing as well as more purchasing at chain retailers in the future. 41% of consumers surveyed stated they would purchase contact lenses online, 22% would perform online research on products while 21% would purchase spectacles online. The results of the consumer survey in the USA have a direct link to the global optometry market.

“The independent optometrist must act now or be left behind.” (Spaulding, 2012)

2.4 The Contact Lens Industry

In 1508 Leonardo da Vinci illustrated the concept of contact lenses by discovering that he had better vision under water without spectacles than in air. In 1887 Adolf Fick, a Swiss physician, successfully fitted the first glass contact lens. The contact lens industry is less than 150 years old and technological advancements make it possible to currently correct a vast amount of visual impairments using contact lenses. They serve as a complementary aid to vision; in most instances contact lenses do not replace the need for spectacles.

The following manufacturers dominate the global contact lens industry: Cooper Vision Incorporated, Bausch and Lomb Incorporated, Johnson and Johnson Vision Care Incorporated and Alcon Incorporated. Globalization has impacted on many facets of business and impacted on the way we live our lives, much the same way it has impacted on the contact lens market. The major contact lens manufacturers have worldwide distribution networks and supply the same products to a multitude of nations with minor adjustments to marketing to comply with regulations in each region.

Contact Lenses are able to correct myopia (short-sightedness), hypermetropia (far-sightedness), astigmatism (an irregular shaped cornea, where the corneal curvature is steeper along one meridian and flatter along the other) and presbyopia (refers to the ageing eye, usually over the age of forty people require the aid of reading spectacles). Today contact lenses are made from a host of materials including: conventional hydrogel, silicone hydrogel and rigid gas permeable materials. People are now able to wear contact lenses with more comfort and have less contact lens related complications than in the past. It is also possible to wear contact lenses for extended periods and sleep with contact lenses on the eyes without any side effects. In the 21st century contact lenses are available in the following wearing modalities: conventional (yearly), monthly, bi-weekly and daily disposable. This can be further divided into daily wear or extended wear in the case of monthly and bi-weekly contact lenses.

Fonn (2009) stated: “If the contact lens industry is serious about protecting or increasing the growth and combating the economic plunge about to affect eye care, much more effort has to be devoted to solving the problems of end-of-day contact lens-induced discomfort and

designing more optically effective bi- or multifocal contact lenses." Since then many of these issues have been addressed through the application of technological advancements in contact lens manufacturing.

Philip Morgan et al. (2012) stated that the highest rate of soft toric contact lens prescribing is 50% in India and Sweden with a low of 4% observed in China, from a study titled: "Contact Lens Prescribing: USA vs. the World". It was further stated that the following were potential reasons as to why higher rates of contact lens prescribing was not achieved:

"• The perception that greater chair time might be required to appropriately fit a soft toric lens with 0.75D power compared to the small visual benefit.
• The erroneous perception that spherical soft lenses will "mask" significant amounts of corneal astigmatism.
• The limited range of toric lens corrections in some lens types, such as daily disposables. • The tendency by some practitioners to opt for the simplicity of a bilateral spherical correction in the case of a patient with a low refractive cylinder in one eye (i.e., 0.50D) and a higher refractive cylinder in the other (i.e., 1.00D), thereby lowering the overall proportion of toric lenses prescribed."

This highlights the potential that exists within the contact lens market.

The major global contact lens companies are showing a move toward the one-day modality (daily disposables) of contact lens wear. In early 2012 Johnson and Johnson launched and extended range of daily disposable contact lenses by manufacturing daily toric lenses for astigmatism, aimed at growing their market share and provide this lens modality to people who could not previously have one-day lenses. This is seen by the higher percentage of daily disposable contact lens wearers in first world countries such as the United Kingdom and United States of America. This amounts to as much as 80% of the soft lens market in those countries. The one-day modality of contact lens wear has proven to be most hygienic and easiest with regard to patient compliance, however the significant drawback in developing markets is the price factor as it cost significantly more for daily disposables as compared to monthly lenses over the same period of time.

A more recent trend in the contact lens industry stems from the correction of presbyopic patients (those over the age of 40 years requiring reading correction). Over the past 5 years contact lens companies have invested a fair amount of resources into multifocal contact lens research and development so much so that daily disposable multifocal contact lenses are available at present. The number of presbyopic people in the USA is projected to increase to 116 million in 2016, from 108 million in 2011, reported in Review of Optometry (2013). Those people currently wearing contact lenses and about to become presbyopic, would rather remain on contact lenses than having to wear spectacles. Similarly those people that have never worn contact lenses or spectacle lenses may have benefit from wearing multifocal contact lenses as opposed to having to start wearing spectacles at the age of 40. It was concluded that: a potential exists to “satisfy and underserved population”.

The estimated percentage gross practice revenue from contact lenses in the United States of America over the past 5 years was 33.6% (Table 2.1), (Contact Lens Spectrum, 2013). The Euromcontact statistics for 2012 indicate an increase in market value of soft contact lenses by 1.7% in 31 countries surveyed. Such information is limited for developing countries but estimates are presumably lower. Online businesses have begun to capitalize on the eye care industry. IBIS World (2012) stated that online sales of contact lenses and spectacles are one of the top 10 fastest growing industries. It was reported that online contact lens and spectacle sales grew 28.2% between 2002 and 2012. These figures are based on existing contact lens wearers changing their purchase habits due to benefits of online shopping, however in developing countries the contact lens market remains relatively untapped both with regard to over the counter and online purchasing.

Table 2.1 Trends in the Business Portion of Practices

	2009	2010	2011	2012	2013
Patients seen each week	108	116	107	127	125
% Contact lens (CL)-wearing Patients	37	36	35	34	34
# CL fits/refits per week	27	27	24	26	25
Estimated % gross practice revenue from CLs	35	34	37	32	30
Estimated % net practice revenue from CLs	29	28	26	27	25

(Source: Contact Lens Spectrum)

According to research by the National Eye Institute in the United States of America, results quoted in a report by Statistic Brain (2014), showed that the prevalence of contact lenses is estimated at 125 million people globally. This means that approximately 1.8% of the world's population wear contact lenses. According to a report from Research and Markets (2013) the contact lens market is expected to grow at a compound annual growth rate of 8.6% through to 2016. The report covers all five continents and all the global contact lens companies. As per the report, this growth rate is due to increased visual awareness in developing countries as the World Health Organization (WHO) and Vision 2020 have partnered together for the global "Right to Sight" program. Due programs such as this and an increase in visual disorders the people are increasing aware of the benefits of contact lenses to aid in vision correction. This potential for growth in the contact lens market exists in South Africa as well as other developing countries.

2.5 The Impact of Contact Lenses on Lifestyle

Current technology allows vision correction to take on many forms such as: spectacle correction, contact lens correction and surgical correction. The majority of people that are currently corrected for vision are using traditional spectacle lenses. There are many spectacle lens manufactures globally however those that dominate market share include: Essilor

International, Hoya Corporation, Carl Zeiss International. Each manufacturer has a host of products designed to meet the specific needs of individuals. Spectacle frame manufacturing is an industry on its own; with the majority of generic eyewear being manufactured in China while branded eyewear vary in manufacture location. 100% of spectacle lenses and spectacle frames are imported into South Africa.

In the "Enhanced Approach to Selecting Eyewear: A multi-centre, practice based study into the effect of applying contact lenses prior to spectacle dispensing." (EASE), by Atkins et al. (2009), an experimental research method was employed and 91 eligible people who did not have previous contact lens exposure were randomly assigned to one of two group's viz. a test group and a control group. Those in the test group were offered contact lenses prior to spectacle dispensing while those in the control group were not. 88% of the test group agreed to have contact lenses fitted and 98% of those were successfully fitted with contact lenses.

The conclusion of the EASE Study (2009) was as follows: "The opportunity to try contact lenses prior to spectacle dispensing was well received by subjects who generally reported a very positive experience. In particular, contact lenses assisted in seeing frame detail and suitability for wear. One third of subjects proceeded to purchase contact lenses. We recommend that practitioners consider offering contact lenses to all suitable patients who are proceeding to spectacle dispensing to optimise the dispensing process and to provide an opportunity to try contact lenses."

The success of this study highlights two important aspects: firstly the contact lenses enhanced peoples lifestyle as those people from the test group who opted to try contact lenses reported having a "very positive experience" and secondly, a third of those people continued to wear and purchase contact lenses which has a direct impact on revenue generated from contact lenses for the optometrist concerned.

According to the British Contact Lens Association (2014), the following were identified as ten main reasons to get contact lenses.

" • Contact lenses offer natural all-round vision whilst enhancing your appearance
• Contact lenses are simple and convenient to use and expand lifestyle choices
• Contact lenses have many advantages for sport and leisure activities
• Contact lenses can be worn every day, part-time or just for going out and special occasions
• Vision with contact lenses can be as good as, or better than with spectacles
• Contact lenses offer a safe, effective, stable, and reversible alternative to refractive surgery
• Contact lenses can correct almost all eyesight conditions and are suitable for people of all ages
• Adaptation to contact lenses is rapid and trouble-free
• The latest contact lenses and solutions provide excellent comfort and eye health
• Some eye conditions can only be corrected with contact lenses "

These 10 reasons further show the lifestyle benefits of wearing contact lenses to those individuals who are eligible to wear contact lenses.

Efron et al. (2012) concluded that extended wear contact lenses are unlikely to become a mainstream wearing modality until the "already low risks of ocular complications" can be reduced to that of the daily wear modality. The purpose of the study was to "determine the extent of extended wear (EW) contact lens prescribing worldwide and to characterize the associated demographics and fitting patterns." 39 countries were involved in the study and up to 1000 surveys were conducted over a 5 year period, 2006-2010. These results emphasize the technological advancements within the contact lens manufacturing process, i.e. modern day contact lenses are low risk to the contact lens wearer.

Contact lenses have been proven to have different impacts at different stages of life. In two separate studies by Pesudovs et al. (2006) and Queirós et al. (2012) where adults were surveyed, participants responses proved to be highly positive toward the lifestyle benefits of

contact lenses as they experienced cosmetic benefits and contact lenses where less restrictive during physically active tasks. In three separate studies by Walline et al. (2007); Rah et al. (2010) and Anstice et al. (2011) it was reported that, in younger patients significantly greater lifestyle benefits have been noted as the self-perception of children are improved by contact lens wear and fitting children with contact lenses do not require more time from the optometrist as compared to fitting adults with contact lenses while minimal risk of adverse effects were reported. Children have been fitted with contact lenses from as young as eight years old.

2.6 Conclusion

The chapter has reviewed the literature available and placed it in context of the research objectives. In the given economic climate of South Africa and the fact that consumer knowledge is increasing due to a more technologically apt society, Optometrists have to find new ways of servicing the needs of people. The potential that contact lenses have to grow the optometric industry is clearly visible from the findings of the studies discussed above. The next chapter will discuss the methodology used in conducting the research.

CHAPTER 3 – RESEARCH METHODOLOGY

3.1 Introduction

Following the review of available literature in the previous chapter, this chapter involves the practical details of the study. In the previous chapter, research questions were developed. In order to successfully find answers to these questions, a research methodology had to be designed and applied. To develop the research methodology, various research textbooks and online sources were used.

3.2 Objectives of the Study

The researcher has identified the following main objectives of the study, as these objectives best fit the gaps visible in the literature in relation to optometrists and the general population (consumers):

- To determine if optometrists are of the opinion that the profit margin is likely to decrease over time.
- To establish if optometrists actively prescribe contact lenses as an aid to vision with the view of growing revenues. (To determine if optometrists view contact lenses as a means to increasing revenues)
- To establish a consumer standpoint on contact lenses.

3.3 Research Design

When conducting research, a researcher may choose a qualitative or quantitative approach, depending on the nature of the research (Ghauri and Gronhaug 2005). The researcher had two choices of data collection that could have been employed when conducting the study, namely quantitative data or qualitative data. The choice of data collection would impact on the methodology as the data collection instruments are vastly different as well as the analysis thereof.

Qualitative data refers to data which are not immediately quantifiable, Sekaran and Bougie (2013). It is data based on meanings that are expressed through words. Such data has to be coded and categorized in some manner in order for it to be analysed. The researcher has to consult experts in the particular field and or focus groups to obtain such data. Analysis is done through the employment of concepts.

Quantitative data refers to data which may be easily quantified. It is data based on meanings that are derived from numbers. Such data is collected in a numerically standardized manner via questionnaires that are based on numerical scales. Analysis is done primarily through statistics and with the use of diagrams.

Based on the discussion above, the researcher has opted for quantitative data to be used in this study as the research objectives will be accurately met and statistical analysis allows for inferences to be drawn to a population using the results of study conducted on a sample.

3.4 Population and Sampling Method

The first two research objectives concerned all optometrists in South Africa. In South Africa, all practicing optometrists are legally required to be registered with the Health Professions Council of South Africa (HPCSA). There are currently 3527 registered optometrists in South Africa, Health Professions Council of South Africa (2014). The survey was sent to the entire population. The register of optometrists is available to all educational institutions and through the support of the Department of Optometry at the University of KwaZulu-Natal, the optometrist survey was electronically mailed to all optometrists in South Africa.

With regard to the third research objective, concerning consumers, a simple random sampling design was employed. All South Africans are consumers, a population of approximately 54 million people. At a confidence level of 95% and a confidence interval of 5% the approximate sample size was 385 for such a large population size. Krejcie and Morgan (1960). Due to the nature of the research, the researcher has estimated the random sample per province to be approximately 42 people prior to sending out the survey. The actual results obtained are discussed in the following chapter.

3.5 The Research Instrument

The researcher designed two research questionnaires, one directed at optometrists and the other directed at consumers. According to Sekaran and Bougie (2013), questionnaires are an efficient data collection mechanism when a study is descriptive or explanatory in nature. Descriptive research refers to research that allows for identification of variability in the different phenomena and the description thereof. Explanatory research refers to research that enables the researcher to examine and explain the relationships between variables. From explanatory research, specific cause and effect relationships may be explained.

Questionnaires are an efficient method of collecting responses from larger samples as each respondent is to respond to the same set of questions (Saunders et al.. 2003). According to Saunders et al. (2003), when research questions are standardized and the researcher is confident that respondents will interpret the questions in the same manner, questionnaire based research works best. Where closed-ended questions are employed, respondents are not allowed to express their views as with open-ended questions, instead respondents are to make a choice from the options provided thereby eliciting a standard set of responses.

The researcher had a choice of method of administration of the questionnaires namely, personally administer the questionnaires; mail the questionnaires or electronic questionnaires. To personally administer the questionnaires or to mail the questionnaires to respondents would have been time consuming based on the sample sizes and geographic area previously discussed. For these reasons, the researcher has opted for electronic questionnaires as they are a fast method of delivery and can span large geographical areas. One drawback with this method is certainty of response rate as respondents may choose to ignore the electronic invitation to participate in the survey.

3.5.1 Construction of the Instruments

For the purpose of the first three objectives of this study, the researcher has designed two questionnaires. The first questionnaire was directed at practicing optometrists in South Africa and addressed the first two objectives (Appendix 1). The second questionnaire was directed

at the consumers of South Africa and addressed the third objective (Appendix 2). Both questionnaires featured questions on demographic data, questions directly related to the research objectives and open ended questions.

3.5.1.1 Questionnaire Optometrists

This questionnaire contained 15 questions. It was designed in the following manner:

- Four questions relating to demographic data
- Eight questions based on a scale
- Three open ended questions

The four questions relating to demographic data entailed questions about gender of the optometrist; age of the optometrist; number of years that the optometrist is in practice for and the province in which the optometrist is based. Gender was used to draw conclusions on the contact lens prescribing habits of male and female optometrists while the age of the optometrist and number of years in practice were used to draw conclusions about experience and contact lens prescribing habits of optometrists. Data pertaining to the geographical location was used to identity if any trends were specific to a particular location in the contact lens market of South Africa.

The eight questions that were asked based on a scale were directly linked to the research objectives. Questions included aspects of optometrist's awareness of American contact lens market; questions pertaining to the profit margin in optometry and questions related to the viability of contact lenses as a means to increase revenue. As discussed in the previous chapter, 34.5% of revenue is earned from contact lenses in the United States of America. Being aware of such statistics would empower the optometrist to actively prescribe more contact lenses. Questions regarding the profit margin were directed at establishing if optometrists found it increasingly difficult to grow profit margins over the past five years and whether optometrists were of the opinion that the profit margin is likely to decrease over time. Such data would highlight the need for a vehicle to grow the optometric industry. Optometrists were also asked if in their opinion, if profit margins would increase by actively

prescribing contact lenses. Such data would indicate if contact lenses would be successful as a vehicle that can be used to grow the optometric industry in South Africa.

The three open ended questions dealt with optometrists that were not contact lens practitioners; the percentage of patients that individual optometrist currently have that are using contact lenses and what optometrists believed could be done to sustain the optometric industry. Specific reasons related to the South African market would be identified as to why some optometrists do not dispense contact lenses. The approximate percentage of people wearing contact lenses was used for comparative purposes to show the gap between spectacles and contact lenses that may be utilized for growth of profit margin. Optometrists were also asked what they thought could be done to sustain the optometric industry as an open ended question so as to identify further initiatives that could grow the industry.

3.5.1.2 Questionnaire Consumers

This questionnaire contained 17 questions. It was designed in the following manner:

- Three questions relating to demographic data
- Thirteen questions based on a scale
- One open ended question

The three questions relation to demographic data included questions on gender; age group and geographical location of the consumer.

The thirteen questions based on a scale pertained to the use of spectacles; lifestyle of consumers; awareness of contact lenses and the benefits of contact lenses. Those consumers who did not wear spectacles were asked to stop and not proceed with the questionnaire as contact lenses would be of no benefit to them while those that wore spectacles were asked to continue. Those consumers who wore spectacles and contact lenses were directed to questions related to the benefits of contact lenses such as, if in their opinion, contact lenses have enhanced their lifestyles and if the associated benefits of contact lenses outweighed the cost. This was important as it indicated if consumers found benefits in using contact lenses and if they are willing to pay for that benefit. For those consumers that only wore spectacles

were asked if they were given the option of contact lenses; if contact lenses would make a positive impact on their lifestyle; if they were aware of the benefits of wearing contact lenses and if they would wear contact lenses given the option. These questions were designed to draw conclusions about those consumers that are the potential target market for contact lens wear but have not been fully informed about contact lenses or are not aware of the associated benefits of contact lenses.

The open ended question was based on whether the consumer would wear contact lenses given the option. If the consumer answered no to this question, they were asked to provide a reason. This would provide insight into the reasons a spectacle wearer would not want to wear contact lenses.

3.5.2 Pre-testing of the Instruments

According to Sekaran and Bougie (2013), "it is important to pre-test the instrument to ensure that questions are understood by the respondents (i.e. there is no ambiguity in the questions) and that there are no problems with the wording or measurement." In this way bias is removed from the survey. This involves the employment of a smaller number of respondents so as to test the appropriateness of the questions and how they are comprehended. The researcher has tested both questionnaires by administering them to local optometrists (colleagues) and to random members of the consumer population to test the understanding, significance and relevance of the questions. Once feedback was received, the order and wording of some questions were modified to ensure better clarity by respondents.

3.5.3 The Likert Scale

The Likert scale is a psychometric scale that is most widely used in research where the research instrument is a survey questionnaire. The scale allows the researcher to measure attitudes, opinions and beliefs of respondents in an ordinal manner. Respondents are presented with a statement or question and are required to indicate the degree of agreement or disagreement. Where a neutral option is presented, respondents are not forced to take a standpoint on a particular topic. The scale has the advantage of being easily understood,

efficient and economical to administer to a large sample size. Data can be easily coded for statistical analysis. The researcher has employed the likert scale for the majority of the questions in both questionnaires.

3.6 Data Collection

An electronic survey was created using Question Pro (an online survey tool). Questionnaires together with informed consent and covering letters were electronically mailed to the population of optometrists and population sample for the consumers. Data collection commenced from 1st September 2014 to 15th October 2014. To ensure a better response rate, reminder emails were sent out in the third week following the initial email. Reminders were sent to both optometrists and consumers.

The researcher has been allowed to use the register available at the Department of Optometry at the University of KwaZulu-Natal. Optometrists were sent an online questionnaire and all data for the first and second research objective was collected electronically.

The researcher has also collected data for the third research objective electronically via a network of people emails were sent out.

3.7 Data Analysis

To assist in meeting the research objectives, data from the survey questionnaires had to be coded and represented numerically. For the purpose of this study, data from the questionnaires was captured on Microsoft Excel spreadsheets and processed in a graphical format. Descriptive and chi-squared analyses were done.

3.7.1 Descriptive Statistics

Descriptive statistics refers to the analysis of data that describes and represent or summarize data in a meaningful way such that patterns may be shown and described from the data. However, descriptive statistics does not allow for conclusions to be made based on any hypothesis that have been identified. Descriptive statistics are a simple way of describing data collected. It is important because if raw data were to be presented, it would be difficult to visualize especially in research where there is an abundance of data. Descriptive analysis employs measures of central tendency such as mean, median, mode and measures of spread such as standard deviation, and allows for graphical representation of data in the form of tables, charts and graphs. The researcher has employed descriptive statistics as a means to analyze the data collected due to the scaled nature of the questionnaire.

3.7.2 Chi-Squared Analysis

The chi-squared test is used to determine if a relationship exists between two variables or if they are independent of each other. By using the chi-squared test the researcher is able to deduce whether or not the observed pattern is due to chance. The test involves the use of contingency tables and is given by the formula:

$$\chi^2 = \sum \frac{(f_o - f_e)^2}{f_e}$$

Where f_0 is the observed frequency and f_e is the expected frequency and χ^2 is the chi-squared statistic. The expected frequency is based on probability.

Regarding the optometrists questionnaire, the researcher critically compared responses to the question: Optometry is a declining industry, to: You found it increasingly difficult to grow your profit margin over the past 5 years. The researcher also compared the responses to Optometry is a declining industry, to: You are of the opinion that profit margin is likely to decrease over time and to: Actively prescribing contact lenses as a means to growing revenues would be successful.

Regarding the consumer questionnaire, the researcher critically compared responses to the question: Would you wear contact lenses if given the option, to: Age Group and to the question: The benefits of contact lenses overweigh the associated cost.

P-values less than 0.05 are considered statistically significant.

3.8 Conclusion

The chapter adequately describes the methodology used in conducting the study in order to obtain satisfactory results to the research objectives. The characteristics of the sampling, the data, the research instrument, the data collection and the data analysis were discussed.

The next chapter will present a summary of the findings of the information collected from the data collection and the analysis of the data, attempting to address the research objectives of the study.

CHAPTER 4 – RESULTS AND DISCUSSION

4.1 Introduction

This chapter will aim to interpret the results from both the Optometrist Survey and the Consumer Survey using descriptive statistics and chi-squared analysis. The responses to each question will be discussed and a collective analysis of the results in addressing the research objectives of the study will be put forward in the next chapter.

4.2 Discussion - Optometrists Survey

Regarding the optometrists survey, 190 people viewed the questionnaire, 94 people started the questionnaire, 64 people completed the questionnaire and 30 people dropped out of the survey. The completion rate of the survey was 68%.

Below is a discussion of the results.

Of the Optometrists that responded, 56.25% of the respondents were female while 43.75% were male, thus showing a relatively even gender spread (Figure 4.1). This gender distribution is representative of the South African gender profile of optometrists as according to a study by Nirghin et al. (2011), 57.8% of optometrists registered with the Health Professions Council of South Africa up to 2008 were female while 42.2% were male. The age group of the respondents varied with the majority being between 36-45 years old and the least were under the age of 25 years old (Figure 4.2).

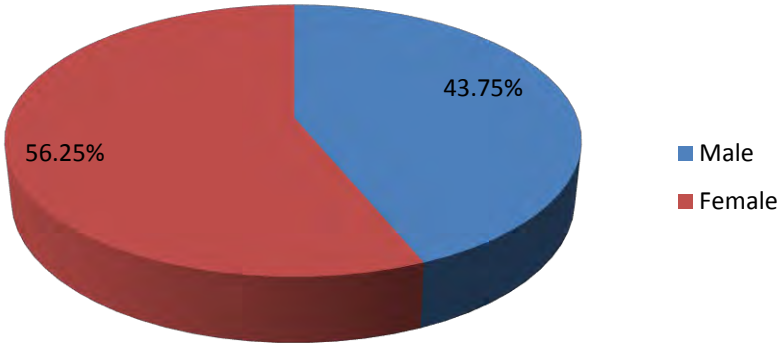

Figure 4.1 Gender distribution of Optometrists

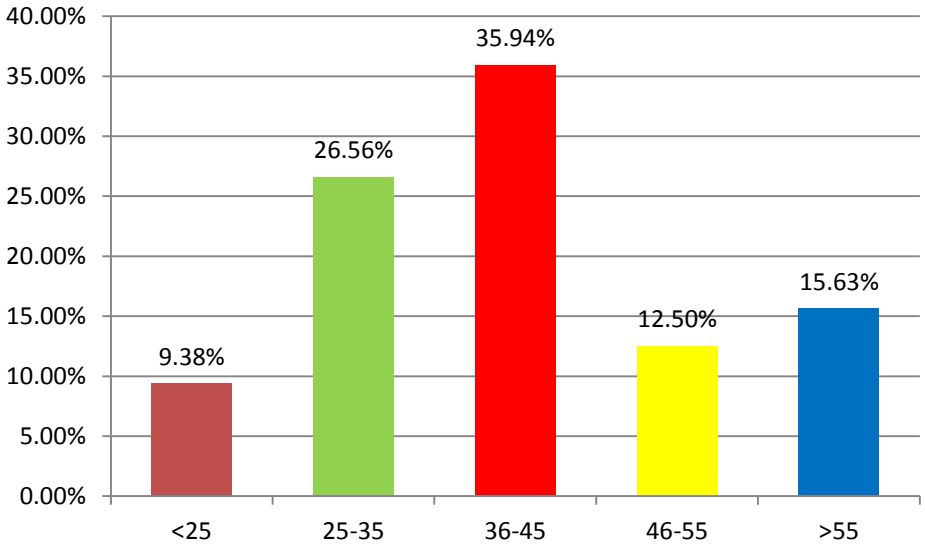

Figure 4.2 Age Group - Optometrists

A fairly even distribution was noted in terms of the optometrists experience with regard to the number of years in practice (Figure 4.3). The majority of respondents 65.63% were in practice for over 10 years. The responses regarding the years in practice provided insight regarding the experience of the optometrists and hence their confidence in prescribing contact lenses, as with more experience, optometrists are more confident in prescribing contact lenses. Most of the respondents resided in Gauteng and KwaZulu-Natal while 14.6%

respondents were from the Eastern Cape and no respondents were from the Northern Cape and North West Province (Figure 4.4).

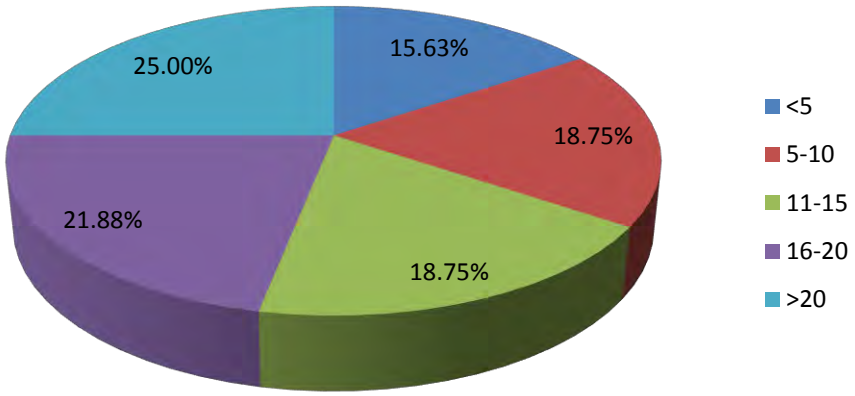

Figure 4.3 Years in Practice

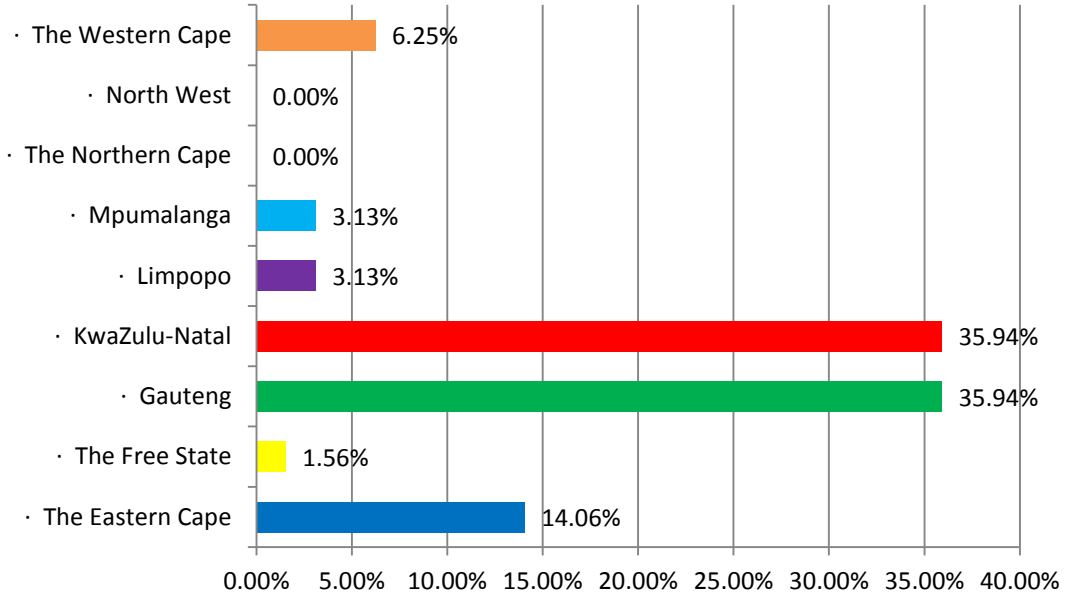

Figure 4.4 Respondents by Province

Almost all (96.88%) the respondents were contact lens practitioners (Figure 4.5). A study conducted in the United Kingdom by Morgan and Efron (2005), about contact lens prescribing

trends between 1995 and 2005 reported that technological advancements in the contact lens industry have had significant impact on the contact lens market over a short period of time. This is a possible reason as to why almost all the respondents prescribed contact lenses.

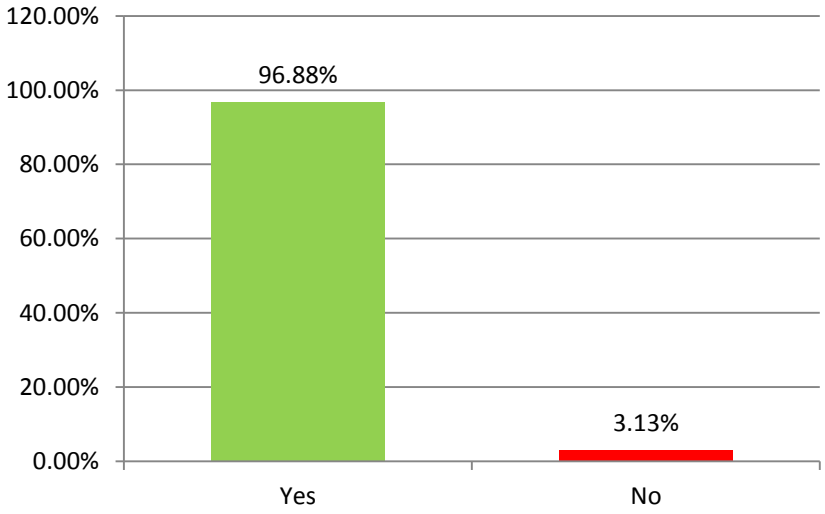

Figure 4.5 Percentage of contact lens practitioners

When asked about the reasons for not prescribing contact lenses, one optometrist stated that the demand for contact lenses in the geographic region that the optometrist practiced was not proportional to the cost of the equipment required to fit patients with contact lenses. Another optometrist stated that most of the patients seen, are from a rural background as the practice is based in a rural community hence the optometrist was of the opinion that there was no market for contact lenses in the given demographic location. According to a study by Dart et al. (2008), the risk of microbial keratitis (a condition of the cornea of the eye that is commonly associated with contact lens wear) was not reduced even for daily disposable contact lens users for patients at the Moorfields Eye Hospital in the United Kingdom. The study supports the reasoning for not prescribing contact lenses in a rural setting.

More than a third (39.34%) of optometrists reported that fewer than 10% of their patients were currently on contact lenses while 1.64% of optometrists reported that between 51-60% of their patients are currently on contact lenses (Figure 4.6). The reasons for the results being

such are multi-factorial and may be attributed to clinical factors such as new contact lens fits being time consuming for the practitioner and the patient as well as factors such as demographics and patient compliance. An average of the results indicates that at a practice level South African optometrists have 24.25% percent of patients on contact lenses while the average according to Nichols (2013), over the past 5 years in the Unites States of America was 35.2%. Of the respondents, 78.13% were not aware of revenues earned from contact lens sales in the USA, thus highlighting the applicability of the study (Figure 4.7).

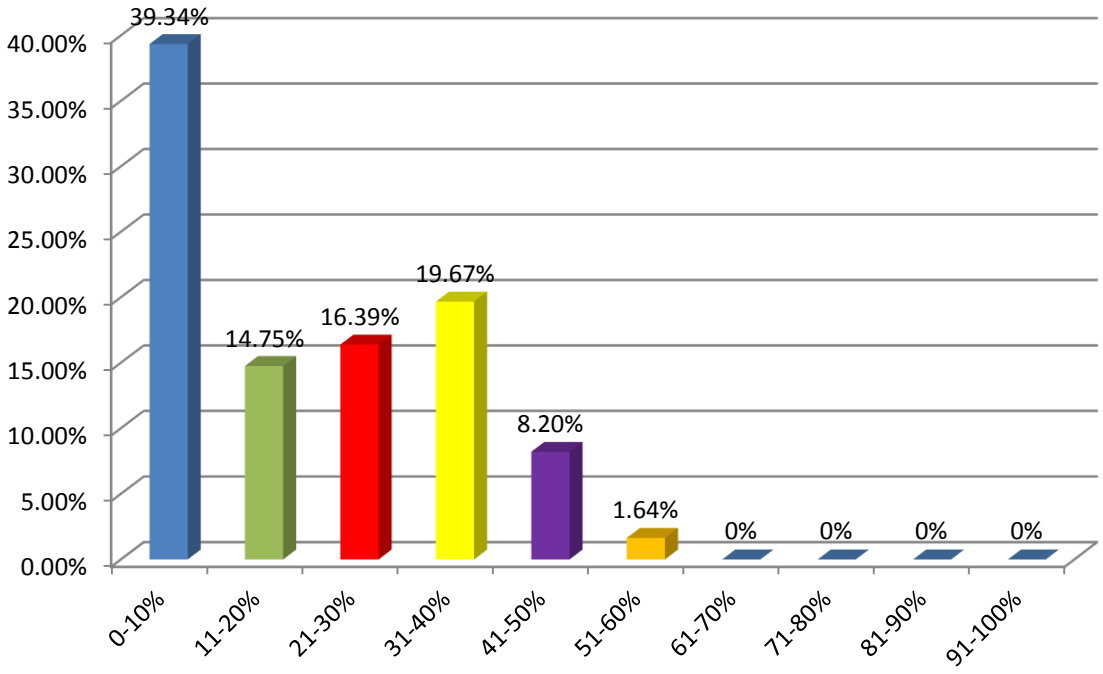

Figure 4.6 Respondents percentage of patients currently on contact lenses

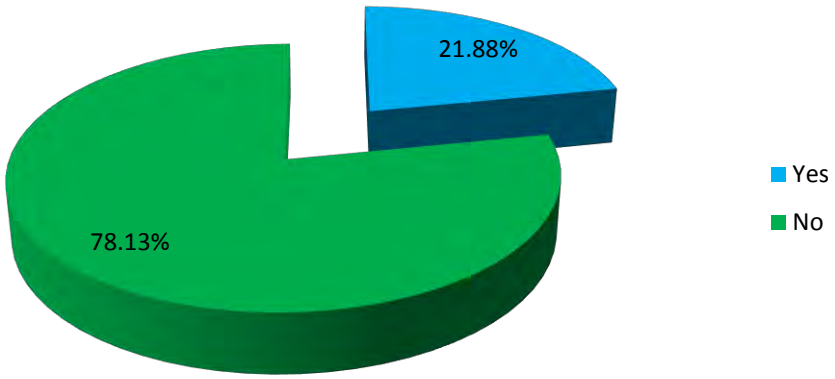

Figure 4.7 Awareness of contact lens sales in the USA

Over 50% of the respondents found it difficult to grow profit margins over the past 5 years while 29.69% of the respondents were neutral with regard to this statement (Figure 4.8). Reasons for the results being such are possibly due to physical location of individual practices, the Living Standards Measure (LSM) of the communities surrounding the individual practices and number of years that a practice has existed. According to Review of Optometry's annual income survey in 22% of optometrists in the United States of America stated that profit margins decreased in 2011 compared to 2010 and 57% stated that profit margins remained constant. According to the surveys conducted in the United States of America, profit margins have remained the same since 2008. Thus in terms of difficulty to grow profit margins, Optometry in South Africa is reflective of the United States of America.

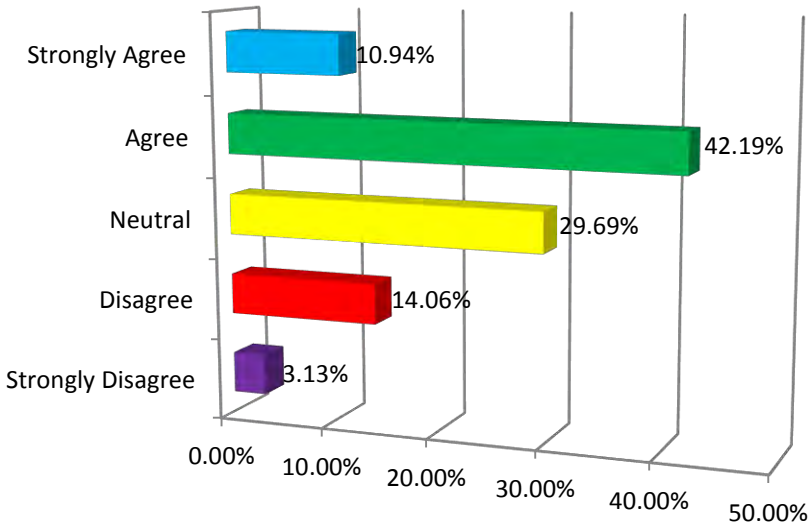

Figure 4.8 Difficulty to grow profit margin over the past 5 years

50% of the respondents were of the opinion that profit margins in optometry were likely to decrease over time. 29.69% of the respondents were neutral regarding this statement. No respondent strongly disagreed with this statement while 20.31% disagreed (Figure 4.9). According to the Review of Optometry's annual income survey in 2011, 9% of optometrists expected a decrease in income for 2012 while 37% expected income to remain the same for 2012 in the United States of America. In comparison to the Unites States of America, more South African Optometrists are of the opinion that profit margins are likely to decrease over time.

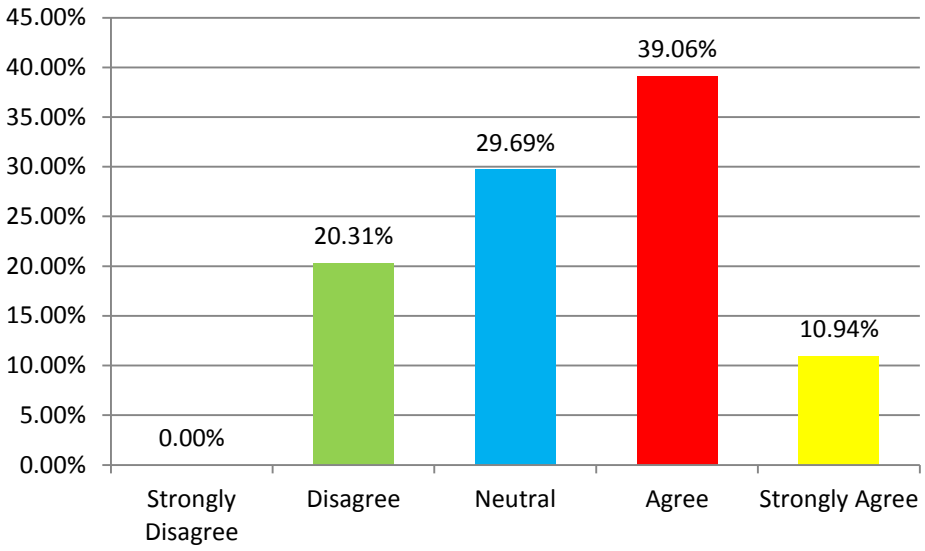

Figure 4.9 Opinion that profit margins are likely to decrease over time

The majority of respondents felt that optometry is not a declining industry at the time of answering the questionnaire, however, with reference to question 10, the majority of respondents felt that profit margins were likely to decrease over time. A total of 39.06% of respondents agreed that optometry is a declining industry (Figure 4.10). According to Elizabeth Spaulding of Bain & Company (2012), a possible reason for respondents agreeing that optometry is a declining industry could be related to factors such as franchising and market pressures such as online shopping. Of the respondents 51.56% believed that dispensing more contact lenses would increase the profit margins while no respondent strongly disagreed with this statement (Figure 4.11). According to a report by Ackerman (2010) patients who wear both spectacles and contact lenses are of more value to a practice in terms of generating revenues than patients who are only on spectacles as the study showed that contact lens patients generate 91% greater revenue over 6 years.

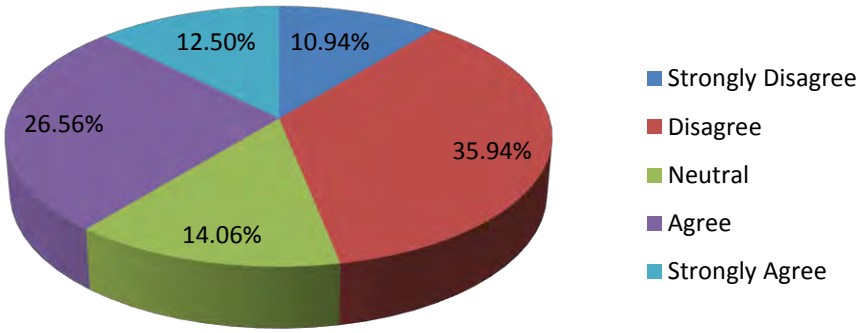

Figure 4.10 Optometry is a declining industry

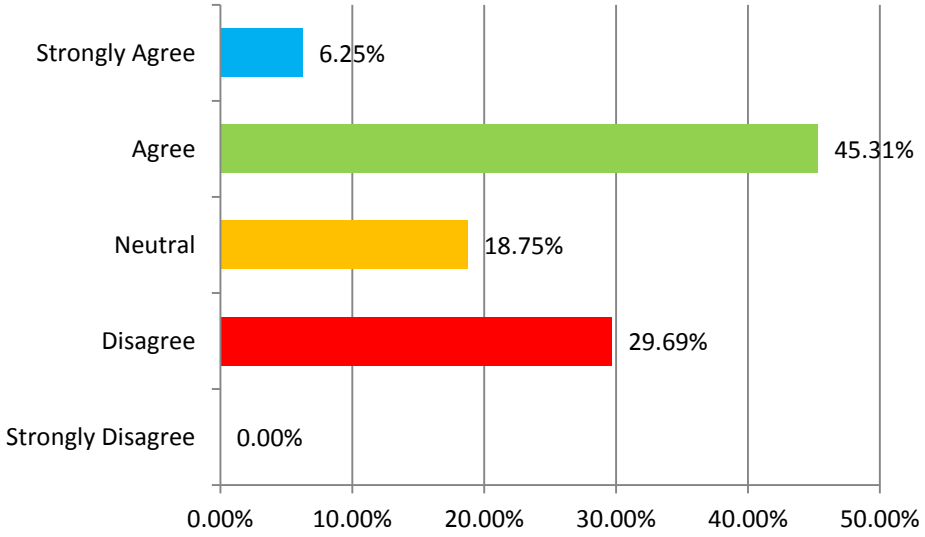

Figure 4.11 Opinion that increasing the number of contact lenses sold will increase the profit margin

Of the optometrists that completed the survey, 39.06% disagreed that they actively prescribe contact lenses as a means to increase revenues while 29.69% actively prescribed contact lenses as a means to increasing revenues. 25% of respondents gave a neutral response to this statement (Figure 4.12). According to a study by Patel NI et al. (2014), titled Customer loyalty among daily disposable contact lens wears, monthly payment plans for contact lenses

improve customer loyalty and is a great practice builder and an attractive business model for optometrists. This study showed that by actively prescribing contact lenses and offering a payment plan to consumers in the United Kingdom, greater profits and customer loyalty were achieved by optometrists. A possible reason as to why optometrists may not actively prescribe contact lenses as a means to increase revenues could be due to the fact that it is time consuming to fit people with contact lenses as many aftercare visits are required and rather than prescribing contact lenses optometrists may believe that spectacle sales may be more worthwhile in that time.

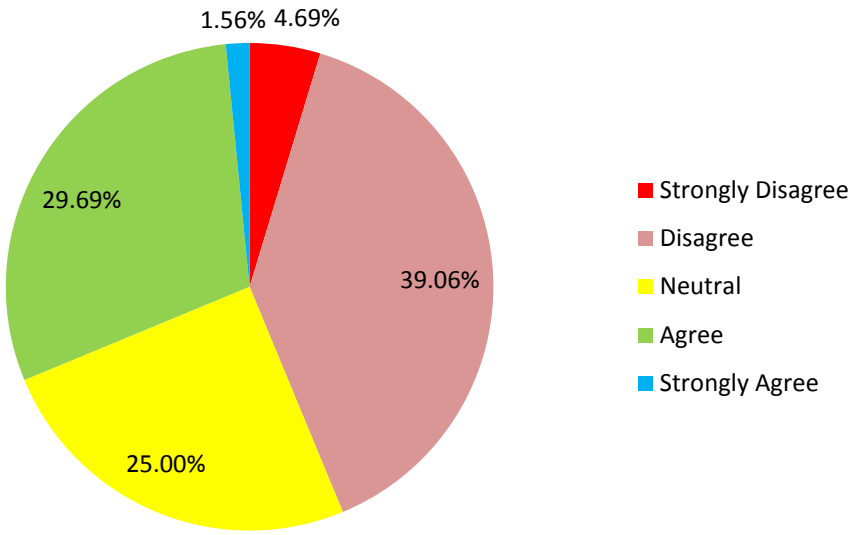

Figure 4.12 Actively prescribing contact lenses to increase revenue

A total of 50% of respondents believed that actively prescribing contact lenses as a means to increase revenues would be successful (Figure 4.13). According to a survey conducted by Jobson Medical Information (2008), most contact lens wear was initiated by patients requesting contact lenses and not by optometrists actively prescribing contact lenses as from the survey 71% of contact lens wear began after patients requested contact lenses while 21% of contact lens wear was initiated by optometrists. This indicates that actively prescribing contact lenses as a means to increasing revenues would be successful.

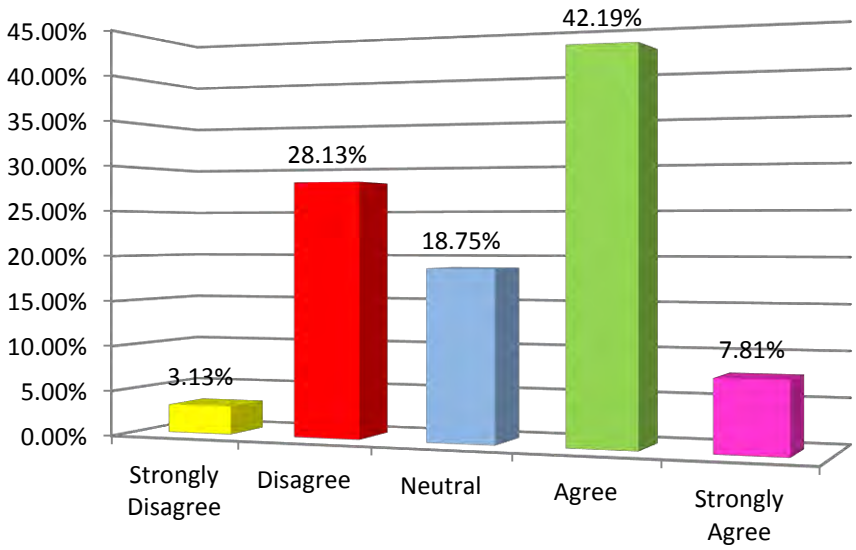

Figure 4.13 Success of actively prescribing contact lenses to increase revenues

When asked about what could be done to sustain the industry, a multitude of responses were received for this question. There were many optometrists with similar responses. The responses were grouped as follows:

- Better patient education
- Stamp out franchising in Optometry
- Better governance from the Health Professions Council of South Africa
- Medical Aid administrators should increase contact lens benefits in accordance with inflation
- Cost of spectacles should be dropped at a wholesale level
- Better marketing by contact lens manufacturers
- Lowering of the cost of contact lenses by manufacturers
- Better professionalism on the part of optometrists in terms of patient education about contact lenses

According to a study by Alberts (2002), franchising in optometry has made economies of scale and brand awareness very relevant in optometry in South Africa. This has allowed franchises to provide considerable discounts and advertise them widely. The study showed that it was

necessary for optometrists in South Africa to gain a sustainable competitive advantage in the market place.

4.3 Discussion – Consumer Survey

Regarding the consumer survey, 481 people viewed the questionnaire, 283 people started the questionnaire, 245 people completed the questionnaire and 38 people dropped out of the survey. The completion rate of the survey was 86%.

Below is a discussion of the results.

For the consumer population, the gender distribution was 52.24% females and 47.76% males, reflecting a relatively even spread for gender (Figure 4.14). Of the respondents 86.16% were over the age of 25 years old with 60.04% being over the age of 30 years old. There were no respondents younger than the age of 15 years old (Figure 4.15).

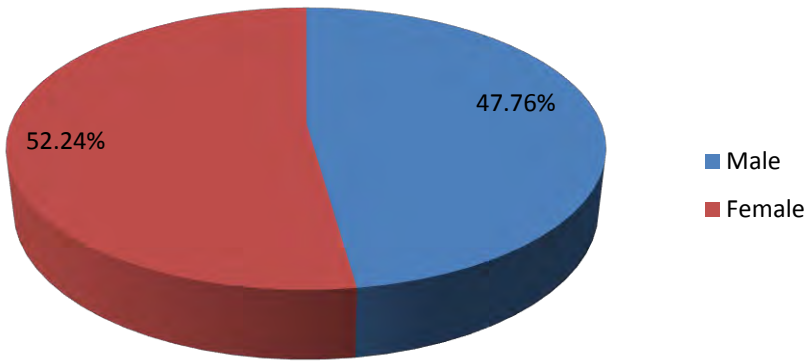

Figure 4.14 Gender Distribution of Consumers

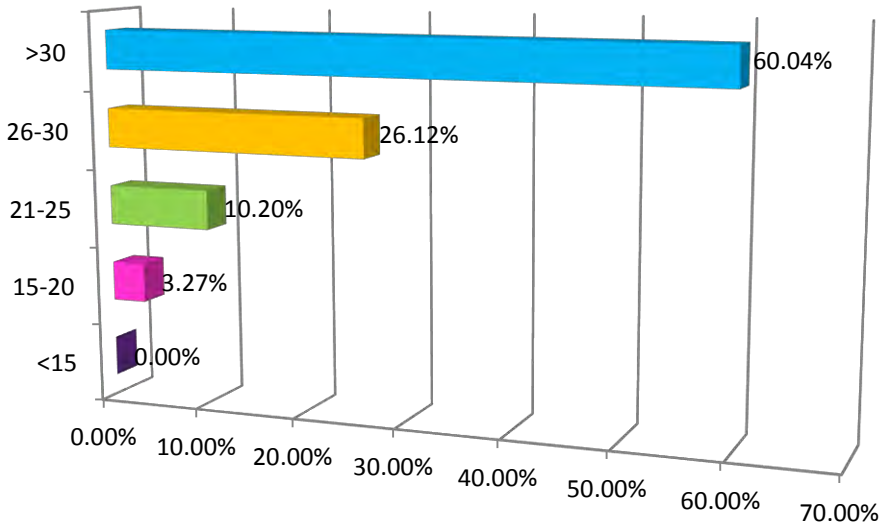

Figure 4.15 Age Group – Consumers

Respondents from all nine provinces completed the survey. The greatest number of respondents was recorded in KwaZulu-Natal (58.37%) followed by Gauteng (21.63%) and The Western Cape thereafter with 8.98% (Figure 4.16). Of all the respondents, 67.76% experienced vision defects while 32.24% responded as experiencing no vision defects (Figure 4.17).

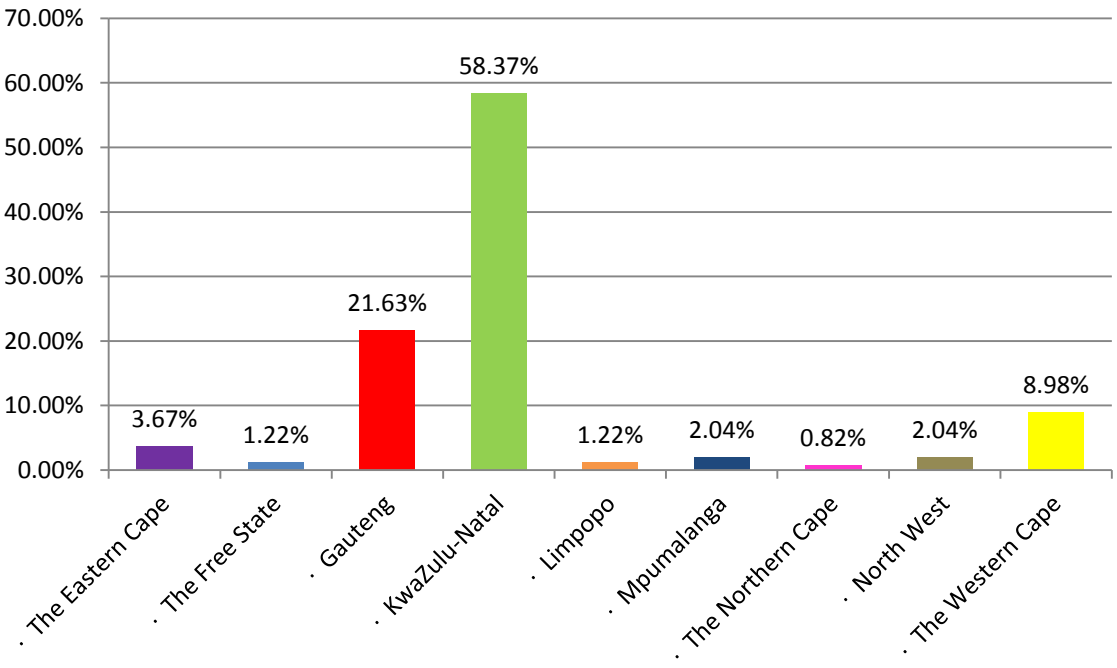

Figure 4.16 Consumer responses by province

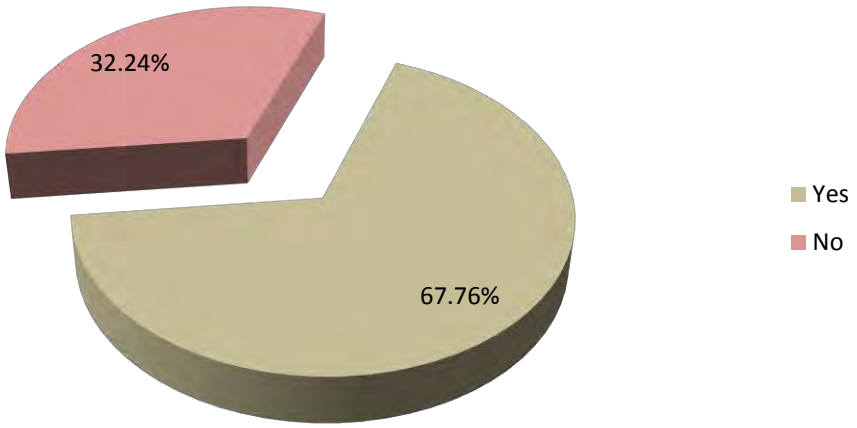

Figure 4.17 Percentage of respondents with and without vision defects

Of all the respondents, 53.06% responded as individuals who led an active lifestyle while 33.06% gave a neutral response to this question. Fewer than 15% of the respondents did not lead an active lifestyle (Figure 4.18). Of the respondents 63.27% were currently spectacle wearers. The 36.73% of respondents that were not spectacle wearers were asked to stop after question 6 because if a person did not wear spectacles it follows that they would not require corrective contact lenses (Figure 4.19).

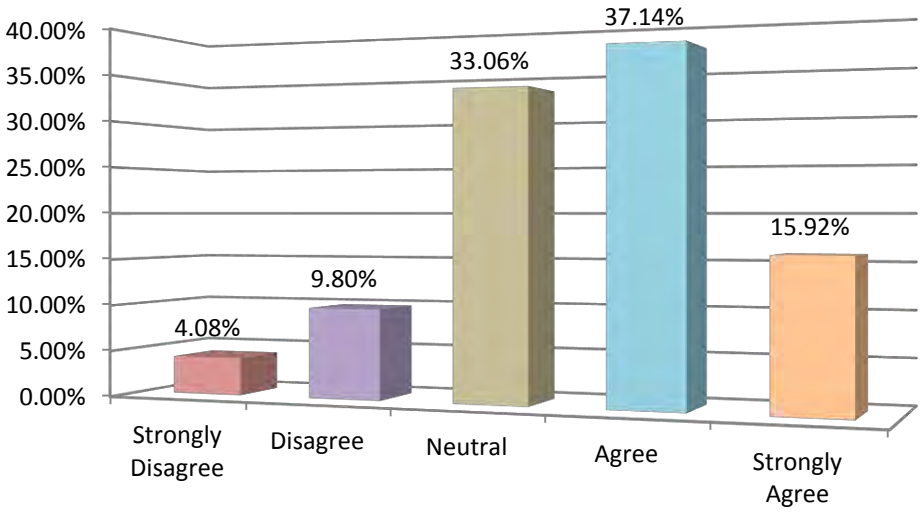

Figure 4.18 Active Lifestyles

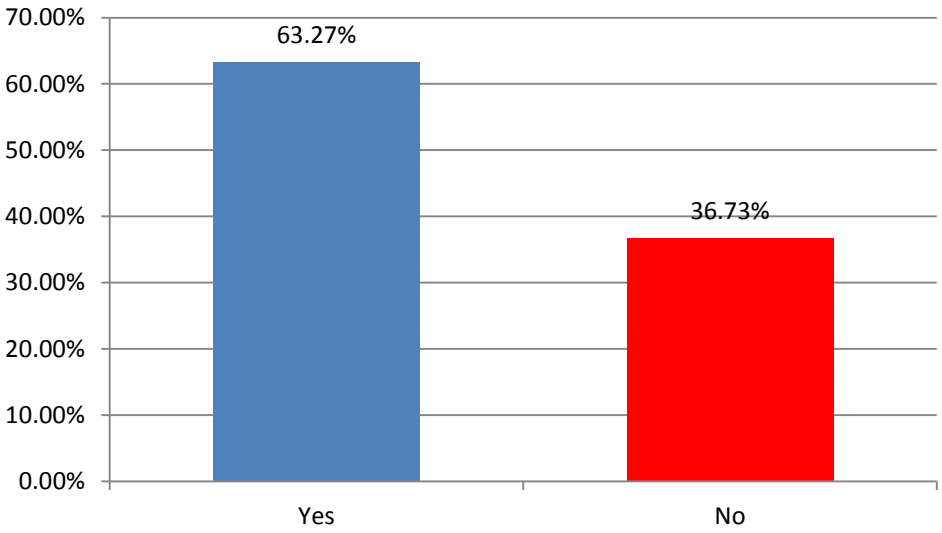

Figure 4.19 Percentage of consumers that wear spectacles

When asked if spectacles hinder their performance while playing sport or excelling at their hobbies, 66.45% of those respondents that wore spectacles responded by agreeing and strongly agreeing that spectacles hinder their performance while playing sport and excelling at their hobbies. 16.77% of respondents gave a neutral response while 16.77% disagreed and strongly disagreed (Figure 4.20). According to the British Contact Lens Association, one of the top ten reasons for wearing contact lenses is that it has numerous advantages for sport and leisure activities and can be used on a daily basis or part-time as needed. 39.35% of the respondents who wore spectacles also wore contact lenses. When asked the question: Do you wear contact lenses? 60.65% of the respondents who wore spectacles did not wear contact lenses (Figure 4.21). Those respondents that wore contact lenses were asked to proceed to question 14 and answer the relevant questions while those respondents that answered no were asked to continue till question 13.

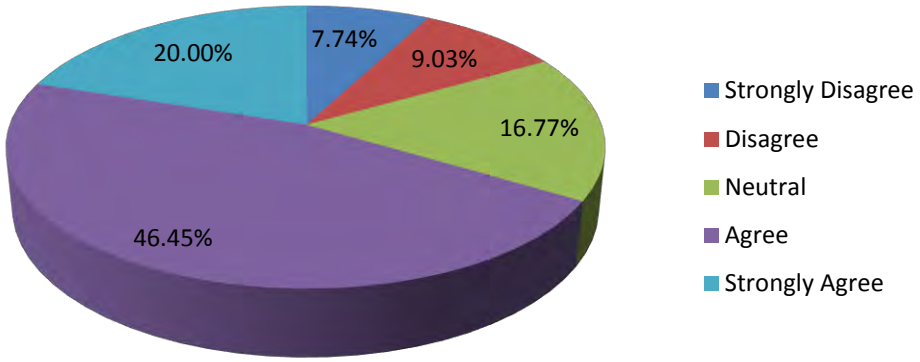

Figure 4.20 Impact of spectacles on lifestyle

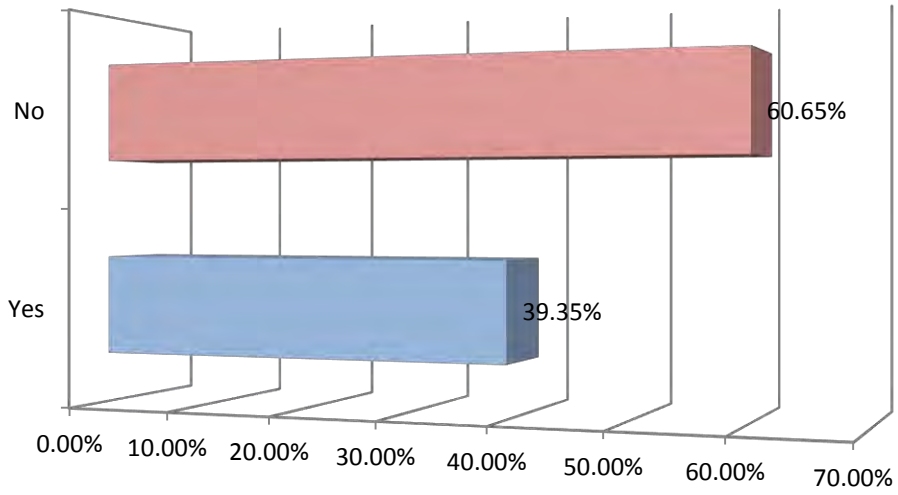

Figure 4.21 Percentage of contact lens wearers

Of the respondents, 54.26% that did not wear contact lenses but wore spectacle lenses reported that their optometrists had discussed the option of contact lenses with them. 45.74% of those respondents that wore spectacles and did not wear contact lenses reported that their optometrists did not discuss the option of contact lenses with them (Figure 4,22). A consumer survey by Ciba Vision (2009) showed that the discussion about contact lenses was initiated by the consumer 89% of the time. This shows that by optometrists actively engaging

patients on the topic of contact lenses the likelihood of patients opting for contact lenses as an aid to vision increases and so does the likelihood of increased revenues.

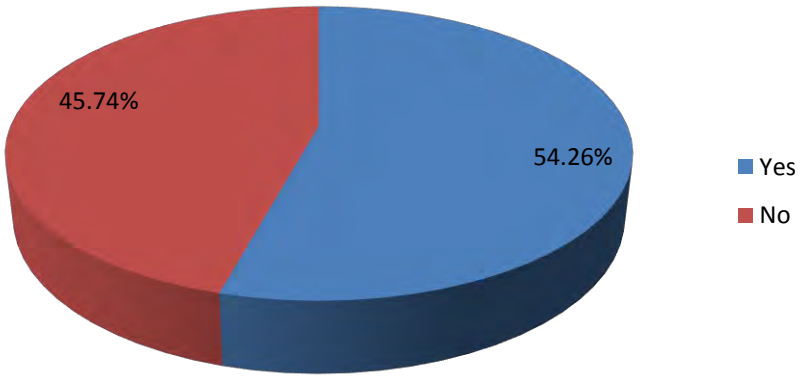

Figure 4.22 Option of contact lenses

In response to the statement: Contact lenses could make a positive impact on your lifestyle, 46.80% of the respondents that wore spectacles and did not wear contact lenses responded by reporting that contact lenses could make a positive impact on their lifestyles. 34.04% were neutral regarding this question while 15.96% disagreed and 3.19% strongly disagreed that contact lenses could make a positive impact to their lifestyles (Figure 4.23). According to the British Contact Lens Association (2014), contact lenses offer natural all-round vision while enhancing appearance. They are simple and convenient to use and contact lenses expand lifestyle choices. The British Contact Lens Association (2014), states that "Contact lenses can correct almost all eyesight conditions and are suitable for people of all ages". Thus, the possibility of contact lenses enhancing a person's lifestyle is indicated. Of the respondents that wore spectacles and did not wear contact lenses, 59.57% were aware of the benefits of wearing contact lenses while 40.43% of respondents were not aware of the benefits of contact lenses (Figure 4.24).

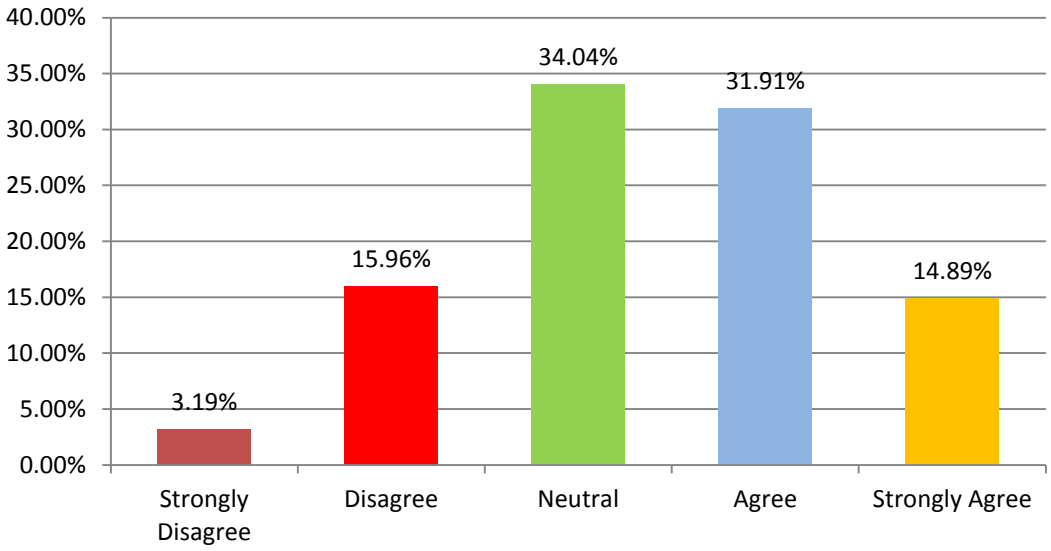

Figure 4.23 Positive Impact of contact lenses on lifestyle

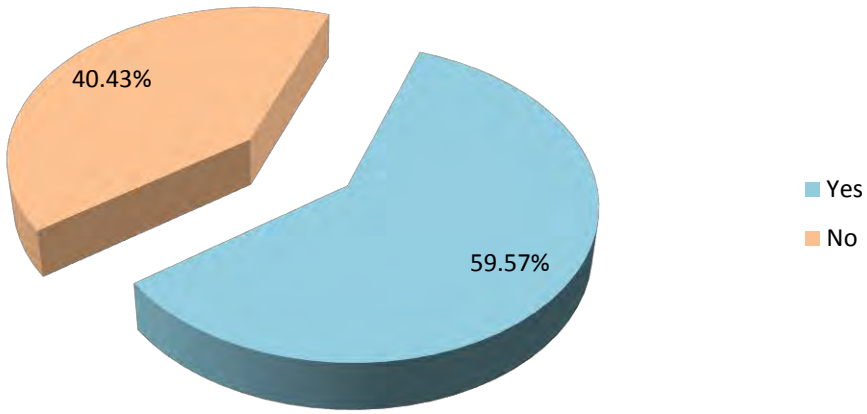

Figure 4.24 Awareness of the benefits of wearing contact lenses

Of the respondents that wore spectacles but did not wear contact lenses, 56.38% responded by reporting that they would wear contact lenses if given the option. 43.62% responded by reporting that they would not wear contact lenses even if given the option (Figure 4.25).

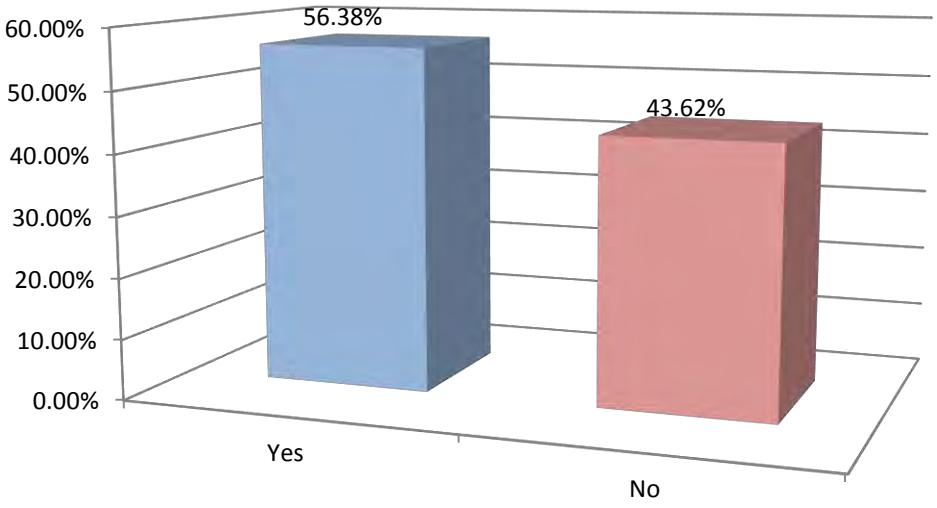

Figure 4.25 Percentage that would wear contact lenses if given the option

Those respondents that responded No to the question: Would you wear contact lenses if given the option, were asked to give reasons for stating so. The responses varied and can be grouped as follows:

- Time consuming to insert and remove contact lenses
- Phobia of inserting contact lenses and having something on the eye
- Phobia of infections as a result of contact lens usage
- Sensitive eyes
- People not being dependant on their spectacles all day, hence not finding the need for contact lenses

These findings are in line with another study conducted by Wu et al. (2010) to investigate "Contact lens user profile, attitudes and level of compliance to lens care". The study concluded that poor hand hygiene, inadequate lens care, and not remembering when to come back for aftercares are the common non-compliant behaviours in contact lens wearers.

Of the respondents that wore spectacles and contact lenses, 65.57% responded by strongly agreeing and agreeing that contact lenses have enhanced their lifestyles (Figure 4.26). According to a study by Walline et al. (2007), contact lenses significantly improved the quality

of life among children and teens as it improved their satisfaction with their vision correction and how they felt about their appearance and participated in activities.

Of respondents that wore spectacles and contact lenses 49.18% were of the view that contact lenses are expensive. 39.34% of respondents were neutral in this regard while 11.48% of respondents disagreed and strongly disagreed that contact lenses were expensive (Figure 4.27).

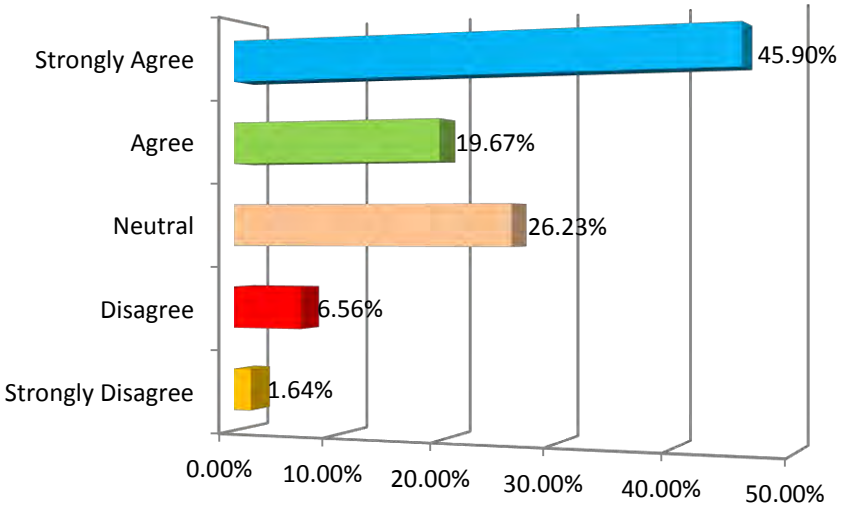

Figure 4.26 Contact Lenses as a lifestyle enhancer

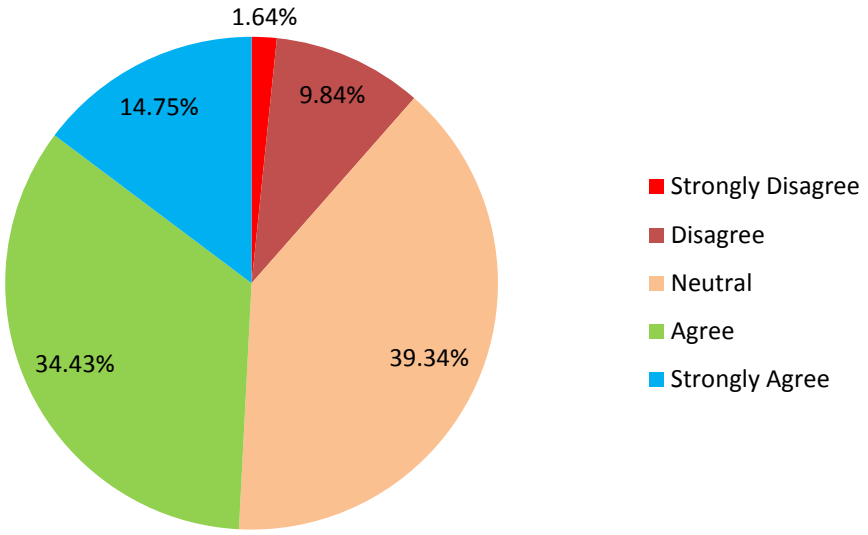

Figure 4.27 The expense of contact lenses

Of the respondents that wore spectacles and contact lenses, 47.55% agreed and strongly agreed that the benefits of contact lenses overweighed the associated cost of contact lenses. 39.34% of respondents gave a neutral response while 13.12% of the respondents disagreed and strongly disagreed that the benefits of contact lenses overweighed the associated cost (Figure 4.28). Of the respondents who wore spectacles and contact lenses, 39.34% disagreed and strongly disagreed that their spectacles are more comfortable than their contact lenses while 36.07% of respondents agreed and strongly agreed that their spectacles are more comfortable than their contact lenses (Figure 4.29). According to the British Contact Lens Association, vision with contact lenses can be as good, if not better than with spectacles as the contact lenses and contact lens solutions currently available provide excellent comfort and eye health thereby supporting the respondents that felt their contact lenses are more comfortable than their spectacles.

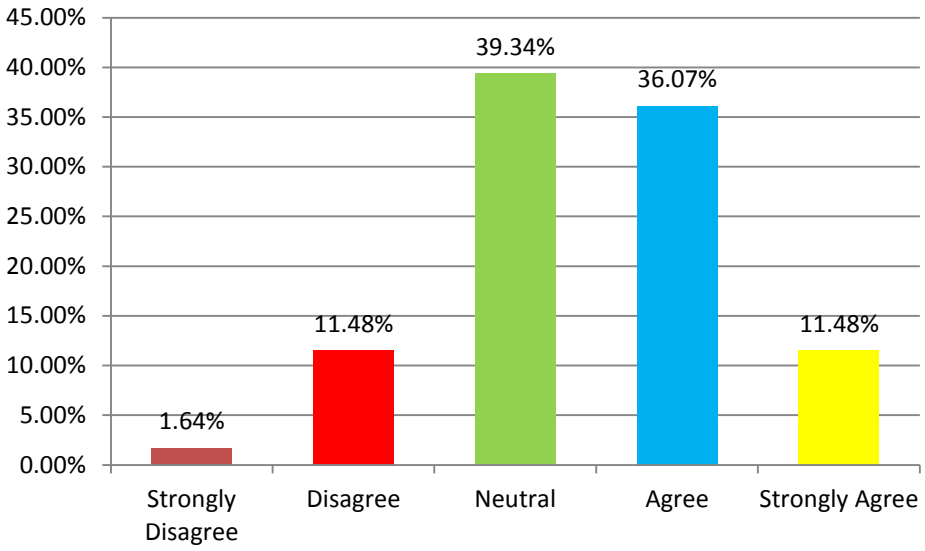

Figure 4.28 Benefits overweigh cost of contact lenses

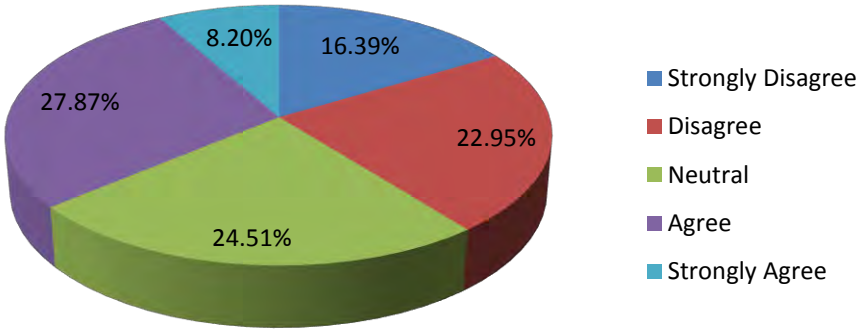

Figure 4.29 Comfort levels of spectacles and contact lenses

4.4 Critical Comparisons – Further Analysis

In this section the relationships between pertinent questions in respect to the research objectives for each questionnaire will be analyzed and discussed using the chi-squared test.

Regarding the optometrists survey, the responses to the question: Optometry is a declining industry, was tested against the responses to the question on: You found it increasingly difficult to grow your profit margin over the past 5 years and the question on: You are of the opinion that profit margin is likely to decrease over time and lastly the question on: Actively prescribing contact lenses as a means to growing revenues would be successful.

Results highlighted that there was significant association between optometry is a declining industry and difficulty to grow the profit margins over the past 5 years (p=0.001). This meant that majority of the respondents, who agreed that Optometry is a declining industry also agreed that it was difficult to grow the profit margins over the past 5 years (84%), (Table 4.1).

Table 4.1 Cross-tabulation between Optometry is a declining industry and increasingly difficult to grow your profit margin over the past 5 years

		Optometry is a declining industry			Chi-Square	p-value
		Disagree	Neutral	Agree		
You found it increasingly difficult to grow your profit margin over the past 5 years	Disagree	7 (22.6%)	4 (44.4%)	0 (0.0%)	19.071	0.001
	Neutral	13 (41.9%)	2 (22.2%)	4 (16.0%)		
	Agree	11 (35.5%)	3 (33.3%)	21 (84.0%)		
Total		31 (100.0%)	9 (100.0%)	25 (100.0%)		

There was a significant relationship between optometry is a declining industry and profit margin is likely to decrease over time (p=0.002). Respondents who agreed that optometry is a declining industry also agreed that profit margins are likely to decrease over time (76%), (Table 4.2).

Table 4.2 Cross-tabulation between Optometry is a declining industry and opinion that profit margin is likely to decrease over time

		Optometry is a declining industry			Chi-Square	p-value
		Disagree	Neutral	Agree		
You are of the opinion that profit margin is likely to decrease over time	Disagree	12 (38.7%)	1 (11.1%)	1 (4.0%)	16.631	0.002
	Neutral	11 (35.5%)	3 (33.3%)	5 (20.0%)		
	Agree	8 (25.8%)	5 (55.6%)	19 (76.0%)		
Total		31 (100.0%)	9 (100.0%)	25 (100.0%)		

Results highlighted that there was significant association between optometry is a declining industry and actively prescribing contact lenses as a means to growing revenues would be successful (p=0.003). This meant that majority of the respondents, who disagreed that Optometry is a declining industry also agreed that actively prescribing contact lenses as a means to grow revenues would be successful (73.3%), (Table 4.3).

Table 4.3 Cross-tabulation between Optometry is a declining industry and actively prescribing contact lenses as a means to growing revenues would be successful

		Optometry is a declining industry			Chi-Square	p-value
		Disagree	Neutral	Agree		
Actively prescribing contact lenses as a means to growing revenues would be successful	Disagree	6 (20.0%)	5 (55.6%)	9 (36.0%)	15.867	0.003
	Neutral	2 (6.7%)	1 (11.1%)	9 (36.0%)		
	Agree	22 (73.3%)	3 (33.3%)	7 (28.0%)		
Total		30 (100.0%)	9 (100.0%)	25 (100.0%)		

Regarding the consumer survey, the responses to the question: Would you wear contact lenses if given the option, were tested against the responses to the Age Group and to the question on: The benefits of contact lenses overweigh the associated cost.

Results highlighted that there was significant relationship between age group and those who would wear contact lenses if given the option (p=0.05). The majority of the respondents over the age of 30 would not wear contact lenses if given the option (84.8%), (Table 4.4).

Table 4.4 Cross-tabulation between would you wear contact lenses if given the option and age group

		Would you wear contact lenses if given the option		Chi-Square	p-value
		Yes	No		
Age Group	15-20	3 (5.1%)	2 (4.3%)	7.831	0.05
	21-25	8 (13.6%)	2 (4.3%)		
	26-30	12 (20.3%)	3 (6.5%)		
	>30	36 (61%)	39 (84.8%)		
Total		59 (100.0%)	46 (100.0%)		

There was significant association between would you wear contact lenses if given the option and the benefits of wearing contact lenses overweigh the associated cost (p=0.012). This meant that respondents, who would wear contact lenses if given the option agree that the benefits of wearing contact lenses overweigh the associated cost (32.4%), compared to those who would not wear contact lenses if given the option (8.3%), (Table 4.5).

Table 4.5 Cross-tabulation between would you wear contact lenses if given the option and the benefits of contact lenses overweigh the associated cost

		Would you wear contact lenses if given the option		Chi-Square	p-value
		Yes	No		
The benefits of contact lenses overweigh the associated cost	Disagree	4 (11.8%)	10 (41.7%)	8.924	0.012
	Neutral	19 (55.9%)	12 (50.0%)		
	Agree	11 (32.4%)	2 (8.3%)		
Total		34 (100.0%)	24 (100.0%)		

4.5 Conclusion

This chapter presented the results of the surveys and provided an interpretation of the results using descriptive statistics as well as statistical analysis to show associations where possible. Descriptive statistics allowed for the graphical representation of the responses to the questionnaires while chi-squared analysis was used to show associations of in the responses. It provided analysis and discussion of the results of the surveys using literature where available to explain possible reasons for the responses received.

The next chapter will provide a conclusion to the study by using the results discussed in this chapter to address the research objectives and make recommendations where necessary.

CHAPTER 5 – CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

Stemming from the results and discussion in the previous chapter, this final chapter will be centred on providing answers to the research questions and providing recommendations where necessary. Any suggestions on future research regarding contact lenses and the optometric industry in South Africa will also be put forward in this chapter.

5.2 Research Objectives

Four main research objectives were identified for this study. However due the lack of data only three will be discussed in detail.

1. **To determine if Optometrists are of the view that profit margins are likely to decrease over time.**

The majority of respondents found it difficult to grow profit margins over the past 5 years. From these responses, as significantly larger group of respondents stating that it has been difficult to grow profit margins over the past 5 years, it can be concluded that it has been difficult for optometrists to grow profit margins over the past 5 years.

The majority of optometrists who responded to the survey are of the opinion that profit margins are likely to decrease over time thus it can be deduced that the scenario of a decrease in profit margins is more likely to occur than an increase in profit margins for optometrists.

The majority of respondents to the statement, optometry is a declining industry, felt that optometry is not a declining industry at the time of answering the questionnaire however, the majority of respondents felt that profit margins are likely to decrease over time.

There were statistically significant associations between the responses to: Optometry is a declining industry and it is difficult to grow profit margins over the past 5 years. Responses

to: Optometry is a declining industry and the responses to: The opinion that profit margins are likely to decrease over time also showed statistically significant association. This meant that respondents who agreed that optometry is a declining industry also agreed that it was difficult to grow profit margins over the past 5 years and agreed that profit margins are likely to decrease over time.

From the discussion above, it can be concluded that for this research objective, optometrists are of the view that profit margins are likely to decrease over time.

2. **To establish if Optometrists are actively prescribing contact lenses as an aid to vision with the view of increasing revenues. (To determine if optometrists view contact lenses as a means to growing revenues.)**

Due to the majority of respondents reporting that increasing the number of contact lenses dispensed would result in greater profit margins and by sheer accounting principles (the greater the volume sold the greater the profits), it can be concluded that an increase in the number of contact lenses dispensed would result in an increase in profit margins.

The majority of optometrists did not actively prescribe contact lenses as a means to increase revenues while the majority of respondents believed that actively prescribing contact lenses as a means to increase revenues would be successful. This indicated that more optometrists are in agreement that actively prescribing contact lenses as a means to increase revenues would be successful.

Responses to: Optometry is a declining industry was compared to responses to: Actively prescribing contact lenses as a means to increasing revenues would be successful and results showed that a statistically significant association existed. The majority of respondents who disagreed that optometry is a declining industry also agreed that actively prescribing contact lenses as a means to increasing revenues would be successful.

From the discussions above, it can be concluded that at the time of completing the survey more optometrists did not actively prescribe contact lenses as a means to increasing

revenues. However, optometrists are of the view that actively prescribing contact lenses as a means to increasing revenues would be successful.

3. **To establish if consumers are willing to use and purchase contact lenses if given the option.**

The majority of those respondents that wore spectacles and did not wear contact lenses reported that their optometrists did not discuss the option of contact lenses with them. This is significant as the majority of spectacle lens prescriptions are available in contact lens prescriptions and thus highlights the potential market that is not utilized by optometrists. Of the respondents that wore spectacles and did not wear contact lenses, the majority responded by reporting that contact lenses could make a positive impact on their lifestyles. This is also significant number as it indicates consumer's willingness towards contact lenses as an aid to vision. Almost three-fifth (59.57%) of non-contact lenses wearers were aware of the benefits of contact lenses, thus showing that by consumer's being aware of the benefit of contact lenses, they are more likely to wear contact lenses if given the option. A larger number of respondents that only wore spectacles responded by reporting that they would wear contact lenses if given the option. From these responses, it can be deduced that more consumers are willing to try contact lenses if given the option.

Of the respondents who wore spectacles and contact lenses, 65.57% responded by strongly agreeing and agreeing that contact lenses have enhanced their lifestyles. It can be concluded that even though respondents viewed contact lenses as expensive, respondents are still willing to purchase contact lenses as more respondents were of the opinion that the associated benefits of contact lenses overweigh the cost. The responses to comfort levels of contact lenses and spectacles highlight that consumers who wear both spectacles and contact lenses have similar levels of comfort with each aid to vision.

There was a statistically significant association to the responses from: Would you wear contact lenses if given the option and the age group of the respondents. When comparing the responses to: Would you wear contact lenses if given the option to the responses to: The benefits of wearing contact lenses overweigh the associated cost, a statistically significant

relationship existed. The majority of respondents that would wear contact lenses if given the option were under the age of 30 years old and the majority of the respondents that would wear contact lenses if given the option, believed that the benefits of wearing contact lenses over weigh the associated cost.

From the discussion above, it can be concluded that more consumers are willing to use and purchase contact lenses if given the option.

5.3 Recommendations and Future Research

From the results of the study, it was found that optometrists are of the view that profit margins are likely to decrease over time. It was also found that more optometrists did not actively prescribe contact lenses as a means to increasing revenues while optometrists are of the view that actively prescribing contact lenses as a means to increasing revenues would be successful. The third research objective of the study showed that more consumers are willing to use and purchase contact lenses if given the option, thus from the research I would recommend that optometrists should take time to discuss the option of contact lenses with each and every patient as this would ultimately result in increased profit margins and increased levels of patient satisfaction which would in turn lead to greater repeat business from satisfied consumers.

Another recommendation would be that contact lens companies engage marketing strategies that create awareness about the benefits of contact lenses in the minds of consumers. This could be done through television, radio and suitable print media. From the results of the consumer survey, many consumers are of the view that contact lenses could be harmful to their eye health therefore it rests with contact lens manufacturers and optometrists to better educate consumers on the benefits of contact lenses that are currently available as technological advancements in contact lenses have made it possible to eliminate many of the complications associated with older contact lenses.

Throughout conducting the study, I found that there was very little in terms of research done in contact lens market in South Africa, thus I would also recommend that more research be

conducted on contact lens demographics in South Africa. I propose that the total volume of spectacle lenses sold to consumers be compared to the total volume of contact lenses sold in terms of volume of consumers that wear spectacle lenses and volume of consumers that wear contact lenses thereby identifying the gap that exists between spectacle wearers and contact lens wearers. This would show the potential market space available for contact lenses as a vehicle to growing the optometric industry in South Africa.

5.4 Limitations

A limitation from researcher's perspective while conducting this study was the response rate to the questionnaires as the researcher anticipated a greater number of responses from certain provinces in South Africa that would give a better reflection of the optometrists and consumers of South Africa.

5.5 Conclusion

While a limitation in terms of responses from certain provinces existed, those respondents that did respond provided a wealth of information and insight into the perception of contact lenses as a business driver in the optometric industry of South Africa. Some of the optometrists that participated in the study requested that a summary of findings be sent to them on completion of the study. This study concluded that contact lenses have the potential to grow the optometric industry in South Africa.

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APPENDICIES

Appendix 1: Questionnaire (Optometrists)

1. Gender

Male Female

2. Age Group

<25 25-35 36-45 46-55 >55

3. Years in practice

<5 5-10 11-15 16-20 >20

4. Which Province do you reside in?

- The Eastern Cape
- The Free State
- Gauteng
- KwaZulu-Natal
- Limpopo
- Mpumalanga
- The Northern Cape
- North West
- The Western Cape

5. Are you a contact lens practitioner?

Yes No

6. If no to the above question, why don't you dispense contact lenses?

_____

_____

_____

_____

7. Approximately what percentage of patients are currently on contact lenses at your practice?

_____

8. Are you aware that the estimated percentage of gross revenue at a practice level from contact lenses in the United States of America over the past 4 years is 34.5%?

Yes No

9. You found it increasingly difficult to grow your profit margin over the past 5 years.

Strongly Disagree Disagree Neutral Agree Strongly Agree

10. You are of the opinion that the profit margin is likely to decrease over time?

Strongly Disagree Disagree Neutral Agree Strongly Agree

11. Optometry is a declining industry.

Strongly Disagree Disagree Neutral Agree Strongly Agree

12. Increasing the number of contact lenses dispensed would result in greater profit margins.

Strongly Disagree Disagree Neutral Agree Strongly Agree

13. You actively prescribe contact lenses as a means to increasing revenues.

Strongly Disagree Disagree Neutral Agree Strongly Agree

14. Actively prescribing contact lenses as a means to increasing revenues would be successful.

Strongly Disagree Disagree Neutral Agree Strongly Agree

15. What could be done to sustain the industry?

_____

_____

_____

_____

Appendix 2: Questionnaire (Consumers)

1. Gender

Male Female

2. Age Group

<15 15-20 21-25 26-30 >30

3. Which Province do you reside in?

- The Eastern Cape
- The Free State
- Gauteng
- KwaZulu-Natal
- Limpopo
- Mpumalanga
- The Northern Cape
- North West
- The Western Cape

4. Do you experience any vision defects?

Yes No

5. You lead an active lifestyle. (Play sport or have any physical hobbies)

Strongly Disagree Disagree Neutral Agree Strongly Agree

6. Do you wear spectacles?

Yes No (then **STOP**)

7. Spectacles hinder your performance while involved in playing sport or excelling at your hobbies?

Strongly Disagree Disagree Neutral Agree Strongly Agree

8. Do you wear contact lenses?

Yes (go to question 12) No (continue)

9. Has your optometrist discussed the option of contact lenses with you?

Yes No

10. Contact lenses could make a positive impact on your lifestyle.

Strongly Disagree Disagree Neutral Agree Strongly Agree

11. Are you aware of the benefits of wearing contact lenses?

Yes No

12. Would you wear contact lenses given the option?

Yes No

13. If no to the above question, then why not?

(**Non-Contact Lens** wearers **STOP** after question 13)

_____

_____

_____

_____

14. Contact lenses have enhanced my lifestyle.

Strongly Disagree Disagree Neutral Agree Strongly Agree

15. Contact lenses are expensive

Strongly Disagree Disagree Neutral Agree Strongly Agree

16. The benefits of contact lenses overweigh the associated cost.

Strongly Disagree Disagree Neutral Agree Strongly Agree

17. Your spectacles are more comfortable than your contact lenses.

Strongly Disagree Disagree Neutral Agree Strongly Agree

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Appendix 3

22 October 2014

Mr Sandesh Srikissoon (200303272)
Graduate School of Business & Leadership
Westville Campus

Protocol reference number: HSS/0414/014M
Project title: The potential of contact lenses as a vehicle to grow the optometric industry in South Africa

Dear Mr Srikissoon,

Approval Notification – Expedited Application / Amendment

This letter serves to notify you that your application and request for an amendment received on 21 October 2014 has now been approved as follows:

- Change in Research Methodology

Any alterations to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form; Title of the Project, Location of the Study must be reviewed and approved through an amendment /modification prior to its implementation. In case you have further queries, please quote the above reference number.

PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

Best wishes for the successful completion of your research protocol.

Yours faithfully

.....
Dr Shenuka Singh (Chair)

/ms

Cc Supervisor: Mr Muhammad Hoque
cc Academic leader Research: Dr E Munapo
cc School Administrator: Ms Zarina Bulyraj

Humanities & Social Sciences Research Ethics Committee
Dr Shenuka Singh (Chair)
Westville Campus, Govan Mbeki Building
Postal Address: Private Bag X54001, Durban 4000
Telephone: +27 (0) 31 260 3587/8350/4557 **Facsimile:** +27 (0) 31 260 4609 **Email:** ximbaz@ukzn.ac.za / snymanm@ukzn.ac.za / mohunp@ukzn.ac.za
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Appendix 4

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News & Publications

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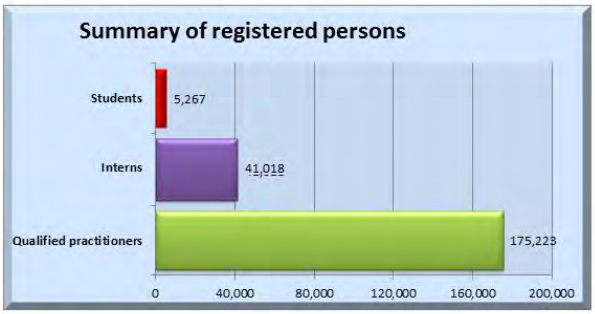
Statistics

This page contains statistical information about list of Registered persons with the Council. The statistics were last updated on 06 May 2014.



Professional Board Dental Therapy & Oral Hygiene

Register	Registration Name	Total
DA	DENTAL ASSISTANT	2,973
DA S	STUDENT DENTAL ASSISTANT	1,669
OH	ORAL HYGIENIST	1,101
OH S	STUDENTORAL HYGIENIST	322
TT	DENTAL THERAPIST	610
TT S	STUDENT DENTAL THERAPIST	206
DOH Total		**6,881**

Professional Board Dietetics & Nutrition

Register	Registration Name	Total
DT	DIETITIAN	2,776
DT S	STUDENT DIETITIAN	1,380
NT	NUTRITIONIST	181
NT S	STUDENT NUTRITIONIST	258
DTB Total		**4,595**

Professional Board Enviromental Health

Register	Registration Name	Total
FI	FOOD INSPECTOR	11
HI	ENVIRONMENTAL HEALTH PRACTITIONER	3,358
HI S	STUDENT ENVIRONMENTAL HEALTH PRACTITIONER	2,300
HIA	ENVIRONMENTAL HEALTH ASSISTANT	60
EHO Total		**5,729**

Professional Board Emegerncy Care

Register	Registration Name	Total
ANA	AMBULANCE EMERGENCY ASSISTANT	8,515
ANT	PARAMEDICS	1,599
ANTS	STUDENT PARAMEDIC	575
BAA	BASIC AMBULANCE ASSISTANT	56,047
ECP	EMERGENCY CARE PRACTITIONER	290
ECP S	STUDENT EMERGENCY CARE PRACTITIONER	505
ECT	EMERGENCY CARE TECHNICIAN	781
ECT S	STUDENT EMERGENCY CARE TECHNICIAN	731
OECO	OPERATIONAL EMERGENCY CARE ORDERLY	553
EMB Total		**69,596**

Professional Board Medical & Dental

Register	Registration Name	Total
AN	ANAESTHETIST'S ASSISTANT	2
BE	BIOMEDICAL ENGINEER	2
CA	CLINICAL ASSOCIATE	362
CA S	STUDENT CLINICAL ASSOCIATE	393
DP	DENTIST	5,824
DP S	STUDENT DENTIST	1,277
GC	GENETIC COUNSELLOR	6
GC S	STUDENT GENETIC COUNSELLOR	2
GCIN	INTERN GENETIC COUNSELLOR	5
GR	GENETIC COUNSELLOR	20
GR S	STUDENT INTERN GENETIC COUNSELLOR	10
GRIN	INTERN GENETIC COUNSELLOR	1
HA	HEALTH ASSISTANT	1
IN	INTERN	1,002
IN S	STUDENT INTERN	1,694
KB	CLINICAL BIOCHEMIST	12
MP	MEDICAL PRACTITIONER	40,749
MP S	MEDICAL STUDENT	10,772
MS	MEDICAL BIOLOGICAL SCIENTIST	127
MS S	STUDENT MEDICAL SCIENTIST	302
MSIN	INTERN MEDICAL SCIENTIST	123
MW	MEDICAL BIOLOGICAL SCIENTIST	475
MW S	STUDENT MEDICAL SCIENTIST	276
MWIN	INTERN MEDICAL BIOLOGICAL SCIENTIST	26
PH	MEDICAL PHYSICIST	132
PH S	STUDENT MEDICAL PHYSICIST	47
PHIN	INTERN MEDICAL PHYSICIST	21
SMW	SUPPLEMENTARY MEDICAL SCIENTIST	3
VS	VISITING STUDENT	49
MDB Total		**65,234**

Professional Board Medical Technology

Register	Registration Name	Total
CT	CYTO-TECHNICIAN	1
GT	MEDICAL TECHNICIAN	2,934
GT S	STUDENT MEDICAL TECHNICIAN	2,392
LA	LABORATORY ASSISTANT	294
LA S	STUDENT LABORATORY ASSISTANT	889
MT	MEDICAL TECHNOLOGIST	5,060
MT S	STUDENT MEDICAL TECHNOLOGIST	3,846
MTIN	MEDICAL TECHNOLOGY INTERN	588
SGT	SUPPLEMENTARY MEDICAL TECHNICIAN	28
SLA	SUPPLEMENTARY LABORATORY ASSISTANT	259
MTB Total		**16,125**

Professional Board Ocupational Therapy, Medical Orthodics/ Prosthetics & Arts Therapy

Register	Registration Name	Total
AOS	ASST MED ORTH PROST & LEATHERWORKER	8
AT	ARTS THERAPIST	66
AT S	ARTS THERAPY STUDENT	9
OB	ORTHOPAEDIC FOOTWEAR TECHNICIAN	56
OS	MEDICAL ORTHOTISTS AND PROSTHETIST	468
OS S	STUDENT MEDICAL ORTHOTISTS AND PROSTHETIST	130
OSA	ORTHOPAEDIC TECHNICAL ASSISTANT	100
OSIN	INTERN MEDICAL ORTHOTISTS AND PROSTHETIST	109
OT	OCCUPATIONAL THERAPIST	4,288
OT S	STUDENT OCCUPATIONAL THERAPIST	1,949
OTB	OCCUPATIONAL THERAPY ASSISTANT	199
OTB S	STUDENT OCCUPATIONAL THERAPY ASSISTANT	47
OTES	DELETED - ART THERAPY STUDENT	10
OTT	OCCUPATIONAL THERAPY TECHNICIAN	447
SOS	SUPPLEMENTARY MEDICAL ORTHOTISTS AND PROSTHETIST	2
OCP Total		**7,888**

Professional Board Optometry & Dispensing Opticians

Register	Registration Name	Total
OD	DISPENSING OPTICIAN	152
OD S	STUDENT DISPENSING OPTICIAN	365
OP	OPTOMETRIST	3,527
OP S	STUDENT OPTOMETRIST	825
OR	ORTHOPTIST	12
SOD	SUPPLEMENTARY OPTICAL DISPENSER	3
SOP	SUPPLEMENTARY OPTOMETRIST	11
ODO Total		**4,895**

Professional Board Physiotherapy, Podiatry & Biokinetics

Register	Registration Name	Total
BK	BIOKINETICIST	1,303
BK S	STUDENT BIOKINETICIST	526
BKIN	INTERN BIOKINETICIST	271
CH	PODIATRIST	253
CH S	STUDENT PODIATRIST	276
MA	MASSEUR	3
PT	PHYSIOTHERAPIST	6,651
PT S	STUDENT PHYSIOTHERAPIST	2,096
PTA	PHYSIOTHERAPY ASSISTANT	247
PTA S	STUDENT PHYSIOTHERAPY ASSISTANT	2
PTT	PHYSIOTHERAPY TECHNICIAN	23
RM	REMEDIAL GYMNAST	2
SCH	SUPPLEMENTARY PODIATRIST	3
SPT	SUPPLEMENTARY PHYSIOTHERAPIST	4
PPB Total		**11,660**

Professional Board Psychology

Register	Registration Name	Total
PM	PSYCHO-TECHNICIAN	29
PMT	PSYCHOMETRIST	1,975
PMT S	STUDENT PSYCHOMETRIST	162
PRC	REGISTERED COUNSELLOR	1,717
PS	PSYCHOLOGIST	7,640
PS S	STUDENT PSYCHOLOGIST	1,223
PSIN	INTERN PSYCHOLOGIST	910
SRC	STUDENT REGISTERED COUNSELLOR	197
PSB Total		**13,853**

Professional Board Radiography and Clinical Technology

Register	Registration Name	Total
DR	RADIOGRAPHER	6,721
DR S	STUDENT RADIOGRAPHER	1,885
EE	ELECTRO-ENCEPHALOGRAPHIC TECHNICIAN	42
EE S	STUDENT ELECTRO-ENCEPHALOGRAPHIC TECHNICIAN	75
KT	CLINICAL TECHNOLOGIST	931
KT S	STUDENT CLINICAL TECHNOLOGIST	526
KTG	GRADUATE CLINICAL TECHNOLOGIST	183
RLT	RADIATION TECHNOLOGIST	13
RLT S	STUDENT RADIATION TECHNOLOGIST	6
RSDR	RESTRICTED SUPP DIAG RADIOGRAPHER	7
SDR	SUPPLEMENTARY DIAGNOSTIC RADIOGRAPHER	251
SDR S	STUDENT SUPPLEMENTARY DIAGNOSTIC RADIOGRAPHER	100
SKT	SUPPLEMENTARY CLINICAL TECHNOLOGIST	5
RCT Total		**10,745**

Professional Board Speech Language & Hearing

Register	Registration Name	Total
AM	AUDIOMETRICIAN	4
AU	AUDIOLOGIST	376
AU S	STUDENT AUDIOLOGIST	378
GAK	HEARING AID ACOUSTICIAN	127
GAK S	STUDENT HEARING AID ACOUSTICIAN	39
SAA		1
SAU	SUPPLIMENTARY AUDIOLOGIST	1
SGAK	SUPPLEMENTARY HEARING AID ACOUSTICIAN	4
SGG	COMMUNITY SPEECH AND HEARING WORKER	19
SGK	SPEECH AND HEARING CORRECTIONIS	6
SHA		1
SSTA	SUPPLIMENTARY SPEECH THERAPIST AND AUDIOLOGIST	1
ST	SPEECH THERAPIST	745
ST S	STUDENT SPEECH THERAPIST	633
STA	SPEECH THERAPIST AND AUDIOLOGIST	1,446
STA S	STUDENT SPEECH THERAPIST AND AUDIOLOGIST	356
STB	SPEECH THERAPIST ASSISTANT	4
SLH Total		**4,141**
Grand Total		**221,508**

To order HPCSA register, please **click here** to dowload a form and return the form to **ramaanom@hpcsa.co.za** The HPCSA provides statistical information. For additional information please contact **yvetted@hpcsa.co.za**

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(Adapted from: http://www.hpcsa.co.za/Publications/Statistics, November 2014)