

Optometry Services in Saudi Arabia

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Abstract

The purpose of this research study is to examine the quality of services provided by the Optometrists in the four provinces of Saudi Arabia. Further, recommendations shall be provided for future improvements based on the findings of the study. Two hundred and forty healthcare facilities were examined by conducting a questionnaire-based survey. Among these healthcare facilities, around 210 facilities were administered by private sector. The study hypothesis to be tested is based on evaluating the impact of hospital category on the quality of optometric services provided. The questionnaires were analyzed by the application of Chi-square test and it was observed that the responses of the participants do not vary on the basis of type of hospital, but the quality of services were dependent on the number of visiting patients. This shows that higher number of patients in the government hospitals, as compared to private and military healthcare centers increase the clinical experience of the practitioners and hence could be associated with the quality of care provided. The government and healthcare agencies should collaborate to develop standardized methods for eye-care delivery which are consistent with the guidelines of World Council of Optometry. Moreover, adequate training and awareness should be provided to the healthcare professionals to ensure quality clinical practices.

Keywords: healthcare facilities, optometric services, vision care services

1. Introduction

Saudi Arabia is situated in the Gulf area near the Arabian Gulf and constituted of a population of 27 million in which 8 million are immigrants (CDSIR, 2010). Significant development has been observed in the kingdom of Saudi Arabia in the last 25 years as a reason of oil-based wealth, which have improved the socioeconomic status of the country. The economic improvement in the country can be easily seen by the advancement in the healthcare system. The health institutions in Saudi Arabia are determined to provide well-integrated healthcare services, which could be proven with the delivery of quality primary and specialist care for eye diseases (Almalki, Fitzgerald, & Clark, 2011). The Saudi government allocated the wealth generated from their oil reservoirs, into all the disciplines specifically in their healthcare system. The remarkable improvement in the healthcare system is also evident from the advancements in the optometric services in only a shorter period of few decades (Khaliq, 2012).

1.1 Health Care System in Saudi Arabia

The noteworthy progress of the healthcare system could be observed by the free of cost delivery of optometric services provided in the government hospitals for the entire population. The beneficiaries of this service were only required to pay for their spectacles and other forms of optical aids. The National healthcare system in the country works in collaboration with various other government agencies. However, the private healthcare sector is also equally participative in the provision of numerous healthcare facilities to the Saudi population.

The major government agency of Saudi Arabia responsible for the provision of healthcare services to the kingdom's population is the Ministry of Health (MOH) Saudi Arabia. For the purpose of healthcare provision, MOH has designated a tremendous network of healthcare centres consisting of 2086 centres around the Kingdom for the provision of primary care services. Broad networks of 249 specialist hospitals have also been established to develop a strong referral system. The purpose of referral from general practitioners to specialist is to serve the cause of quality curative treatment for every citizen. Therefore, MOH is highly efficient as a leading healthcare

agency continuously involved in the planning, regulating and financing of healthcare projects, around the kingdom. MOH is the only agency which is not only responsible for supervising and performing follow-up for governmental endeavours, but is actively involved in the healthcare advancement of the private sector. These national level reforms transform the view of MOH as a national health services agency for the population (HSYB, 2010). The other agencies involved in the financing and delivery of healthcare at primary, secondary and tertiary levels include the Ministry of Defence and Aviation (MODA), the Ministry of Interior (MOI) and the Saudi Arabia National Guard (SANG). Various other healthcare agencies are also involved in the delivery of free of cost and quality healthcare to the Saudi population. It should be noted that healthcare is also financed by different Ministries in Saudi Arabia, such as Ministry of Health and Ministry of Higher Education supports the health-related cost of students. Ministry of Social Affairs is responsible for financing the treatment of mentally retarded and custody of orphans. Hence, the healthcare facilities in the orphan homes and psychological rehabilitation centers are supported by the Ministry of Social Affairs. Certain categories of the population along with sports management are provided with appropriate healthcare services by the General Presidency of Youth.

Curative Services and medical education is also being promoted by various Universities in the Kingdom through training programs and collaborative health research projects in University research centres. The patients referred for tertiary care in the national hospitals such as King Faisal and King Khalid Eye Specialist Hospital are also financed by the government. The King Faisal Specialist Hospital and Research Centre are referred for the treatment of specialist cases which are needed to be cured through latest technology. The hospital is very active in carrying out research on the health-related issues of the general population in the KSA. The King Khalid Eye Specialist Hospital is designated as one of the finest hospitals which deliver high quality services in the field of Ophthalmology and also serves as a research centre for ophthalmologic diseases.

The hospital spends a larger amount of revenue in importing corneas for eye surgeries and research purposes. The kingdom has a well-developed private sector providing a range of healthcare services through hospitals, dispensaries, pharmacies and centers for physiotherapy.

1.2 Education and Educational Activities

A recent evolution in the field of Optometrics has been observed in the history of Saudi Arabia. The Department of Biomedical Technology in the King Saud University is the first to start Optometry courses for the Saudi students in 1985. The Four_year baccalaureate degree in Optometry produced momentum in this field and it later evolved as a separate department in the University in 1993. Qassim University also started its Optometry program in 2007 and promoted the status of the program by awarding a 6-years postgraduate qualification of Doctor of Optometry to its students. These University programs has immensely aided in increasing the highly needed Optometric professionals in the Kingdom. Apart from the rising popularity of the field of Optometry, still few researches have been carried out on this topic. Hence, this study aims to evaluate the status of optometry services for patients in the four main provinces of Saudi Arabia and to propose recommendations about improving optometric services in governmental and private clinics.

2. Subjects and Methods

The study utilised a 6-item survey questionnaire, which is provided in Annexure1. These questionnaires were distributed to 240 hospitals out of which two hundred and ten facilities are considered to be run by private sector, whereas, thirty were owned by different government arms and operated by different ministries. Twenty three hospitals are operated in different provinces by the Ministry of Health (MOH). Three specific facilities were each managed by the agencies of Ministry of Defence and Aviation (MODA), Saudi Arabian National Guard Hospital (SANG) and Security Force Hospital (SFH). These hospitals and private health care services were provided in all the 4 provinces: Riyadh, Jeddah, Dammam and Tabuk. These hospitals and dispensaries were selected due to their high contribution and effectiveness in providing health services in each city.

Data collection was carried out between February 2009 and June 2011. In this survey, the response rate was 100%. The questionnaire was designed to explore the level of service provided to the patients who need eye care. The questionnaire was completed by the Head of ophthalmology department in participated hospitals and dispensaries (Poly clinic) (55%) and in many hospitals and dispensaries it was completed by registered optometrists (45%).

3. Results

Two hundred and forty facilities including government hospitals and healthcare centers run privately were targeted for distribution of the questionnaires. The response rate was 100% and hospitals and private medical care services chosen were divided into three categories: Private (n= 210), Ministry of Health (MOH) (n= 23) and Military (n= 7). Majority of the government clinics worked 7.5hrs to 8hrs, while the private practices remained open for more than

10 hrs. Therefore, the mean working hours of the healthcare facilities included in the study was found to be 8.96 and SD was calculated as 0.91 hours.

The responses of the questionnaire showed that 81.25% of the medical facilities lying in all the three above mentioned categories do not cover the full cost of optometry services ($P < 0.001$) as shown in Annexure 2. Generally, 22.6% of them attributed that to a lack of knowledge about the profession and 61.02% suggested it as a reason of shortages in qualified optometrists as shown in Figure 1. It should be noted that 72.3% of the participants from the private sector revealed that due to shortages of qualified optometrist the optometry services are not provided for free, whereas 78.1% of the participants attributed that to financial reasons. However, Lack of knowledge about optometry profession was the main reason of limited optometry services in military hospitals. As a result, most of the physicians refer their patients to nearest Optometrists in the city and the percentage of participant referral is 71.8 %.

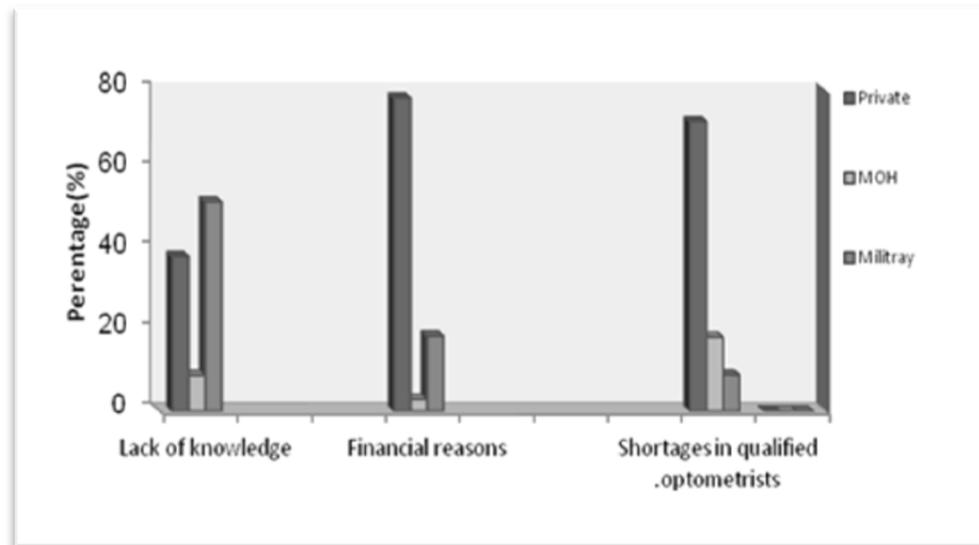


Figure 1. What are the reasons for not providing optometric services in your hospital or private clinic?

An attempted was made to test the hypothesis that: Is there any difference between type of hospital and services provided? A Chi-square test was used to assess the responses of the questionnaire distributed in all the hospitals included in the study. Question No. 6 is exempted from analysis due to the lack of variability in the responses in this question. Question no. 4 was also re-accumulated by increasing the number of patients up to 10 and more to make it suitable for analysis. The findings for this study were as follows.

(1) No significant difference was found between Q1, Q3, Q4 and Q5 based on the type of hospital under study and the p-values are found to be 0.191, 0.064, 0.853 and 0.394 respectively.

(2) There is a dependency between type of hospital and number of patients who visited the hospitals because the numbers of patient in facilities governed by the Ministry of Health is higher as compared to private and military hospitals. The percentages of patients visiting these hospitals during the period of study was found to be 79.4%, 5.9% and 14.7% respectively with p-value equal to 0.001.

4. Discussion

The current study investigated the status of optometry services available for Saudi population and has attempted to propose recommendations about improving eye-care services in governmental and private clinics. The history of practicing optometry in Saudi Arabia is recent and therefore much improvement is needed in this field. Even though, Twenty Four Government universities are present in Saudi Arabia but only one university has launched a full educational programme in Optometry since 1986. A report based on a study done by Saudi Commercial Chamber in 2007, identified the major obstacles faced by the investors, who wish to work in the field of optometry. This could be justified as the shortage of professional optometrists and a lack of colleges and institutes in the field of optometry (CSC, 2007). Recently, two universities (Qassim University and Taibah University) have started their own programme considering the urgent need for optometrists as a part of eye health care team in government and

private sectors.

The current study shows that, 81.25% of the medical services who participated in this study don't provide a full optometry services. Most of them attributed that to a lack of necessary information and knowledge about the profession as depicted in Table 2 and Figure 1. Also, the result of this study shows that, 45.8% of the participants who answer this questionnaire do not know the difference between the profession of Optometry and Ophthalmology. This result indicates that, most of the people who work in the field of medical services need to be educated about this profession and should understand the difference between Optometry and the field of ophthalmology. A leaflet containing general information about the profession of optometry has also been distributed to the study participants. It shows that, an eye care professional is an individual who provides a service related to the eyes or vision. It is the general term that can refer to any healthcare worker involved in eye care, from one with a small amount of post-secondary training to practitioners with a doctoral level of education (Georgievski, Koklanis, Fenton, & Koukouras, 2007). The Ophthalmologist, Optometrist, Orthoptist, Ophthalmic technician, Optician, & Ophthalmic nurse are all terminologies used in distinguishing one eye care professional from the other. Some other terms apply in other countries. On the other hand, an Ophthalmologist is a specialized medical doctor (MD) who has done specialization for the surgery of eye diseases. In Saudi Arabia and other developed countries, Ophthalmologist needs to complete a total of six years of study in medicine discipline with four years of residency or fellowship in a sub-specialty of Ophthalmology.

An Optometrist is licensed for the provision of services regarding the eye-care of the patients. This includes the diagnosis of eye diseases and the correction of refractive errors in people. In many countries, the Optometrist is authorized to prescribe a limited number of medications. Further, they are also allowed to conduct surgery for minor eye ailments. In most countries, optometry is either a four to five year's college degree. In the United States of America, the degree of Optometrist is awarded after a four years of college followed by four years of professional education at an optometry school in a Doctor of Optometry (OD) program. An internship or residency training of 1 year or more is also required for specialty qualification in the field. However, it is observed that many states in the United States of America prohibit optometrist from practicing as a specialist and they are usually allowed to treat the common eye ailments and prescribe appropriate medication. In Saudi Arabia, they complete a 4 and one-half year long Bachelor of Science (Optometry) – B.Sc. (Optometry) training in King Saud University or a 6 year Doctor of Optometry (OD) program in Qassim University. Further, the optometry students are needed to complete a pre-registration internship program in a healthcare institution under the supervision of a senior qualified optometrist. On completion of the training, the students could apply in Saudi Council of Health Specialties to get registered as a Practical Optometrist. Generally, a distinct difference between Ophthalmologist and Optometrist is that, Ophthalmologists are medical doctors having a specialized degree in surgical or medical eye care from a medical school. Moreover, optometrists are professionals who have studied from a school of Optometry and have earned specialization in the field of refractive and primary care of eye. Ophthalmologists only provides surgical services for ocular diseases, whereas, optometrists are responsible for the comprehensive care provision for diseases related to eye and vision problems. It involves refraction and detection/diagnosis and limited management of disease in the eye. Optometrist often refers their patients to Ophthalmologist if they require laser treatment, ocular surgery etc.

We believe that the three healthcare professionals practicing in Saudi Arabia are primarily associated with treating the vision and care issues and these include Optometrist, Ophthalmologist and the opticians. It is estimated that Saudi Arabia has a total of 556 practicing optometrists currently practicing in the kingdom and this number of optometrists covers a current population of 27 million Saudi citizens as reported by the Central Department of Statistics and Information Report. Figure 1 shows that the current optometrist to population ratio is 1:48,561 as compared to previous ratio of 1:65,000 reported by Oduntan in 1994. The manpower deficiency nevertheless has fallen when compared to previous report (Oduntan, 1994; Almalki, Fitzgerald, & Clark, 2011). The study by Oduntan in 1994 was conducted at the time when only King Saud University Optometry training was available in the Kingdom and has graduated the first three batches; hence his study results make this value unreliable now. Lastly the study covered only few areas of the Kingdom and couldn't have gotten a complete data of all geographical locations where eye care services were being provided. It has to be noticed that in agreement with previous report by Oduntan 1994, this survey also found out that optometry services are only provided in some major cities of Saudi Arabia i.e. in Riyadh and Makkah. However, the optometric services are commonly provided in all the area in developing countries. It is also noted that Optometry services are more commonly needed by the rural population (Saliba, 2008; Kiely & Chakman, 2011).

Refraction services are most commonly rendered by the practitioners, seconded by soft contact lens practice. The treatment of vision problems through contact lens application is also very common in Saudi Arabia. Similarly, the

use of soft lenses is also very common around the world these days (Charm, Cheung, & Cho, 2010; Alotaibi, & AL-Mosa, 2011). Overall, the quality of services provided for contact lens application by the optometrist, ophthalmologist or opticians is optimum as a reason of valuable clinical experience. This has also been reported by Briggs and Oduntan in 1996 (Almalki, Fitzgerald, & Clark, 2011). The presence of several contact lens companies such as vistakon, Bausch and Lomb, Johnson and Johnson, and Wesley Johnson in the Kingdom have also contributed to this awareness and standard as from time to time lectures on contact lenses are being organised for professionals.

On the other hand, there is a potential need for optometrists in Saudi Arabia because it is estimated that 39% of the blind population around the world lives in developing countries and 246 million have impaired vision problems excluding those with uncorrected refractive error (Pascolini & Mariotti, 2011). Recent experimental analysis suggested that blindness due to refractive error is increasing globally due to inadequate services provided for the diagnosis and correction of refractive error. Blindness is manifested as visual acuity $<3/60$ in the better eye and based on this phenomenon, the percentage of blindness due to refractive error has increased up to 1.6% in Cameroon (Oye, Kuper, Dineen, Befidi-Mengue, & Foster, 2006).

In a study done by Al-Shaalin, et.al in 2011, it has been estimated that visual impairment around the world is found to be 13.9% (95% CI: 11.4%-16.9%). The major reasons for impaired vision were thought to be refractive errors (36.0%), cataract (29.1%) and diabetic retinopathy (20.9%) and glaucoma (5.8%). Those suffering through refractive error and cataract will need glasses or contact lenses after extraction to correct the aphakia or the residual refractive error. It is done by the process of intra ocular lens implantation. The studies highlighted the importance of eye care services needed for refractive error correction, which in turn, increases the dire need of qualified Optometrist. The number of patients seen per day by each practitioner varies significantly with a greater number of them seeing more than twenty patients per day. Some practitioners see as few as five patients per day while others see as many as twenty patients daily. It is evident that practitioners in government hospital have an opportunity to see a greater number of patients due to easy and affordable access to quality care.

5. Conclusion

Generally, the practice of Optometry in Saudi Arabia is very promising evident by the government budget for 2013. The budget reflects a notable investment in Education and Health care. The current turn out and production of Optometry graduates and the interest in investing in the economy is being signaled by many optical factories in line. Globalization has positively added to the advancement in the healthcare practices and it is a positive sign for greater opportunities in the field. However, the stakeholders of this profession needs to put specific things in place to ensure that standardized and comprehensive eye care is delivered to the populace in accordance with the World Council of Optometry guidelines and the FDA instructions.

Recommendations

Trained and certified ophthalmic practitioners are a potential solution to delivering quality eye care service in Saudi Arabia. The examination of patients by uncertified practitioners should be strongly discouraged, as their competence in providing quality eye care service ought to be guaranteed. It has shown that trained and certified ophthalmic medical practitioners (OMP) bring more value and productivity than non-certified OMP to a clinic (Aistle et al., 2011). So we must ensure that every eye care provider has the required skills and training for practicing.

There is need for more academic training programs. Compulsory continuous education programs (CEP) organised by accredited institutions to incorporate high professional standards and skills among students. This is necessary to acknowledge the strengths and weaknesses of contemporary clinical practice and also help to determine priorities in the future. It provides a forum for exchange of ideas and information and to present those views to national authorities; and to provide information to the public. The findings of the studies conducted by Al-ahmadi and Roland (2005), and Al-Sakkak et al. (2008), stated that there is a substantial variation in the quality of Saudi primary care services and hence improvement in the knowledge and skills of the staff is required. This is a proven method for producing practitioners capable of providing high quality eye care. A minimum of credit points should be awarded to practitioners at each CEP and it should become a condition for renewal of practice license of practitioners.

Establishment of more Optometry departments in Saudi Arabia is required to serve the rural areas and to produce adequate manpower that would be able to meet the population growth of the Kingdom. Also, harmonization of educational outcomes in Saudi Arabia is also recommended.

There are significant signs that optometric educational institutions in Saudi Arabia just like other institutions in the

developed world are sensitive to the opportunities in transnational optometric education.¹⁸ For example, over the last years, several departments of our institution have become affiliate members of some international organisations. This membership, in many cases, has provided a platform for the departments to strengthen and expand its interest in international education. This sort of membership should be encouraged in optometry department by being a member of the World Council of Optometry (WCO), World Contact Lens Educators (WCLE) etc. The resulting international network will help in the advancement of healthcare in Saudi Arabia just as it has impacted on several other countries such as China, South Africa, Nigeria, Thailand, Germany, Switzerland, Australia, USA, Canada, Ghana, Singapore, Japan, Poland, Netherlands and many more (Di Stefano et al., 2004). Public awareness programs should be put on board for enlightenment on eye care profession. Involvement of the Saudi optometrist in the annual international vision programs such as world sight day should be encouraged.

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Competing Interests Statement

The author declares that there is no competing or potential conflict of interest regarding the publication of this paper.

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Appendix

Annexure 1. Questioner for the Study

Question	Number
1	Do you provide full optometry clinic in your hospital or private medical centre? 1- YES 2- NO
2	If your answer is NO in Q.2, What are the reasons for not providing optometric services in your hospital or private clinic? 1- Shortages in qualified optometrists. 2- Financial reasons (private sector). 3- Lack of knowledge about optometry profession.
3	If your answer is NO in Q.1, what do you do for patients who need glasses or contact lenses? Refer to : 1- Optometrists 2- General Practitioners
4	If your answer is YES in Q.1, state the number of patients visiting your clinic per week who have refractive error only? < 5 patients per day: () 5-10 patients per day: () 11-20 patients per day: () > 20 patients per day: ()
5	If your answer is YES in Q.2, What type of refractive correction do you provide for your patients? 1- Glasses 2- Contact Lenses
6	Leaflet about Optometry profession will be given at this stage... Is there need for optometry services in Saudi Arabia? 1- YES 2- NO

Annexure 2. Questions for those who do not provide an optometry service [*n* (%)]

Question	Result
1-Do you provide full optometry clinic in your hospital or private medical centre?	Yes: 45 (18.75 %) No: 195 (81.25 %)
2- If your answer is NO in Q.1, What are the reasons for not providing optometric services in your hospital or private clinic?	1- Shortages in qualified optometrists. 119 (61.02 %) 2- Financial reasons (private sector). 32 (16.41 %) 3- Lack of knowledge about optometry profession. 44 (22.56 %)
3- If your answer is NO in Q.1, what do you do for patients who need glasses or contact lenses?	Refer them to 1-Optometrists (71.79%) 2-GeneralPractitioners (28.20%)

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