

Research Article

A study of ocular morbidity, utilization and impact on patients' satisfaction in an ophthalmic clinic at Primary Health Center in Al Ahsa district of Saudi Arabia

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ABSTRACT

Purpose:Ocular morbidity is the spectrum of eye diseases regardless of resultant visual loss experienced by a population. In the light of very few information regarding ocular morbidity in Saudi Arabia, we conducted a study to find out the ocular problems experienced by patients attending a community eye clinic situated in its eastern province.

Methods:It was a cross sectional , descriptive study which included all patients attending a community eye clinic of Al Ahsa district of Saudi Arabia during the three months period starting from August 2014.

Visual acuity was assessed at distance with Snellen Illiterate E chart and at near with Low Vision Resource Centre (LVRC) near acuity chart. Anterior segment was examined with slit lamp biomicroscopy. Fundus was examined with + 90 diopter lenses with slit lamp bio microscopy with mydriatics. Intraocular pressure were measured by applanation tonometer.

Results: One thousand one hundred and ten patients were included in this study. The mean age was 35.47 yrs (range 0.5 to 88 years). Among the all received patients the leading cause of ocular morbidity was refractive error (27.7% , n=308) followed by conjunctivitis (26.1% , n=290), Lid disorder(10.9%,n=121), Cataract(4.3%,n=48), Glaucoma (2.3% , n=25), Trauma (3.8% , n=42), Diabetic Retinopathy(2.4%,n=27), Childhood misalignment of the eyes (1.2% , n=13), Disease of the Nasolacrimal duct (2.1% , n=23) and Congenital eye problem (0.2% , n=2). A total of 167 diabetic patients were screened

for the detection of Diabetic Retinopathy and 27 patients (2.4%) were found to be suffering with diabetic retinopathy. The utilization of clinic in term of procedure performed in the clinic consisted of medical management (41.1%,n=456), routine fundus examination for the detection of diabetic retinopathy(14.1%,n=156), Minor surgical procedures(6.6%, n=73), Refraction (29.37%,n=326), Referral to tertiary eye center(6.7%,n=75) and vision test for driving license (2.1%,n=24). As far as the satisfaction of the patients attending the clinic is concerned , more than ninety percent of the subjects agreed that they were satisfied with the courtesy and interaction by the eye specialists, their convenience of attending the community eye care clinic , benefits of saving time and money in attending the clinic , eye health education and their satisfaction with the eye specialist for follow up management . More than eighty percent patients were of the opinion that they receive most of the minor surgeries as treatment and were satisfied with the result of the surgeries.

Conclusion:A large number of people affected by different type of ocular morbidity attended the community clinic in this survey and optimally utilized the clinic and were mostly satisfied with the eye care services. Most of these people could potentially be managed in their own communities through primary care.

Keywords: Ocular morbidity, Primary health care center, Refractive error, conjunctivitis

Introduction

Ocular morbidity is defined as the spectrum of eye diseases which includes both visually impairing and non-visual impairing

conditions, experienced by a population. Ocular morbidity is either significant to the individual (the individual is concerned enough about the condition to seek care) or to professionals (an eye health professional determines that the individual would

benefit from advice, further review or treatment). The visually impairing ocular morbidity is a major public health problem.¹ The cataract, glaucoma, refractive error and diabetic retinopathy are the major causes of blindness throughout the world and needs early detection at primary health center and their timely referral to the secondary and tertiary eye care center for corrective measures. The primary eye care is a vital component of the primary health care system. The eye care has been given lower priority as compared to other diseases such as chronic diseases, dental care and HIV-AIDS in most of the developing countries including Saudi Arabia. But the fact is that eye diseases have emerged as major public health concerns in the recent years with enormous adverse impact on human health, productivity and economy of the individual, family and the state. WHO statistics shows that there are about 284 million people visually impaired worldwide: 39 million are blind and 246 million have low vision and most importantly 80% of all visual impairment can be prevented, treated or cured.² This needs a quality eye care service from the primary to the tertiary level. Primary eye care is the essential building block for prevention of blindness in all communities and in all regions of the world. Without primary eye care only those individuals who present to secondary and tertiary facilities will be diagnosed and treated, and little will be achieved in terms of prevention. Saudi Arabia has had a National program for the control of blindness since 1978 and has placed eye care on the national healthcare agenda and has drafted a vision 2020 national plan with the collaboration of WHO.³ Ministry of Health, Saudi Arabia is spending close to 10% of its total health budget on the eye care to its citizens.⁴

Many secondary and tertiary eye care centers have been established in the recent past but the importance of intervention at the primary care level cannot be ignored because it is this level of intervention which truly addresses the eye problems where they occur. The access of high quality of eye care facilities cannot be limited to the cities alone and the care to the underprivileged people living away from cities should not be compromised as far as the quality of care is concerned. This can be addressed by satellite eye clinic attached to the secondary or tertiary eye care hospital or by independent mini eye clinic at the PHC level. Unlike other countries there are no satellite eye clinics in Saudi Arabia but there is one or few community ophthalmologist clinic at the primary health care centers in whole Saudi Arabia. However the ocular morbidity attending these clinics, their utilization patterns and their impact on patients' satisfaction is largely unknown. This study will assess the ocular morbidity of the population attending one of such clinic including its utilization and its impact on patients' satisfaction. To our best of knowledge, no such study has been done at any primary health care center in Saudi Arabia. The result of this study will guide Ministry of Health in taking the further steps for improving the eye care at the Primary health care level.

Methodology:

Summary of the study design:

A cross sectional study was conducted at Omran Eye Clinic during the three months period starting August 2014.

Subjects and setting

Study population: All the patients attending the eye clinic

at Omran Primary Health care Center during the three months period starting August 2014 were included in this study. Sampling technique: The participants were selected by serial recruitment of all patients attending the eye clinic after their written informed consent. They were thoroughly explained the purpose, procedures, and content of the research.

Data collection

The data were collected from the health records and the questionnaires asked from each patient attending the eye clinic. In case of minor, the parents were asked the questionnaires. The demographical details such as age, sex, origin of visit (referral or self-referred), type of visit (new or follow up) and reason of referral were recorded. The ophthalmological examination done in each case such as visual acuity test (using snellen chart), slit lamp examination for anterior segment of the eyes, fundus examination after dilatation (Slit Lamp with +90 Diopter lens), tear film break up time (to diagnose dry eye), fluorescein staining of the cornea (to detect corneal abrasion), intraocular pressure measurement by applanation tonometer, syringing and probing (to find out and to rule out the patency or blockage of the lacrimal drainage system) and Vision test for driving license.

Vision test was tested by keeping the snellen chart at 6 meter with the best corrected vision. Those who could not see 6/60 were brought to 3 meters or 1 meter to the snellen chart. In case the subject could not read to this distance then count finger at different distances were measured. In case of failure in recognition of count finger, subjects were told to recognize hand movement close to face and in case of failure of recognizing the hand movement they were told to recognize the light.

Cases needing intervention like cases of chalazia, drainage of external hordeolum, and epilation of the eye lashes in cases of trichiasis were treated in the minor operation sitting at the examination spot itself. While cases needing further investigations and major surgical intervention were referred to Al Jabar eye specialist hospital of Al Ahsa region like cases of cataracts, pterygium, strabismus etc. Medical treatment for the cases, glasses prescription was provided in the OPD clinic itself. All the cases were entered in a proforma specifically designed for the study. Statistical analysis was done using statistical package for social service (SPSS) version 21. A statistician was consulted when necessary.

Definition of Variables

WHO definition of visual impairment was applied in this study which is as follow

Normal vision was defined as 6/6 while mild visual impairment moderate visual impairment, severe visual impairment and complete blindness were defined as equal to or better than 6/18, 6/18 to 6/60, 6/60 to 3/60 and no light perception respectively with the best visual correction.

Open angle glaucoma was defined as the increased intraocular pressure (More than 21 mm of Hg) with cupping of optic disc and peripheral visual field changes.

Ocular hypertension was defined as the increased intraocular pressure without cupping of optic disc and visual field changes.

Congenital dacryostenosis was defined as condition where

the children who complained of watering and discharge since birth in one or both eyes with regurgitation of watery or mucopurulent discharge on pressing the lacrimal sac.

Result

A total of 1110 patients were received in eye clinic during the period of three months starting August 2014. Of them 496(44.7%) were male while 614(55.3%) were female with mean age of 35.47(range 0.5 to 88 years). Among them 62.88% (n=698) were referred patients from different primary health care centers and 37.12% (n=412) were self-referred patients. As far as the type of visit is concerned almost 85% (n=942) of the patient were new and only 15 % (n=168) were follow up cases. Among the referred cases 18.4 % (n=204) were those cases who were sent because they did not improve with the primary physician's treatment while 7.5% (n=83) cases were sent since treatment were not available at PHC. Sixteen percent of the cases were referred for routine fundus exam for the detection of diabetic retinopathy while 18.0% (n=200) were referred for refraction. There were 14 patients (1.3%) for chronic glaucoma follow up, 5 patients for minor surgical procedure. Among the four hundred and twelve self-referred cases 369 (33.39%) cases attended the clinic for common eye diseases (such as dry eyes, allergic conjunctivitis etc) while

twenty four cases (2.2%) and nineteen cases (1.71%) attended for driving licenses vision checkup and refraction respectively. The detail demographic characteristics are shown in table 1.

Among the all received patients the leading cause of ocular morbidity was refractive error (29.37% , n=326) followed by conjunctivitis (26.1%, n=290),Lid disorder(10.9%,n=121), cataract(4.3%,n=48), glaucoma (2.3%, n=25),trauma (3.8%, n=42),diabetic retinopathy(2.4%,n=27),childhood misalignment of the eyes (1.2%,n=12),disease of the nasolacrimal duct (2.1%, n=23) and congenital eye problem (0.2%, n=2) respectively. A total of 167 diabetic patients were screened for the detection of diabetic retinopathy and 27 patients (2.4%) were found to be suffering with diabetic retinopathy.

Thirty eight percent (n=425) of the subjects were suffering from defective vision. Of them 76.70 % (n=326) were suffering from refractive error while the rest 23.3 % (n=99) were suffering from various other causes such as cataract, glaucoma and corneal opacities. The prevalence of visual impairment and blindness was significantly more among female than the male (184 vs. 241, p=.000) (table 2).

Of the 29.37% (n=326) subjects detected with refractive

Table 1: Demographic characteristics of the study population.

Characteristics	frequency	%
Age groups years		
Less than 10	186	16.8
11-20	138	12.4
21-30	152	13.7
31-40	126	11.4
41-50	144	13.0
51-60	153	13.7
More than 60 years	211	19.0
Total	1110	100
Sex		
Male	496	44.7
Female	614	55.3
Total	1110	100
Origin of visit		
Referred from other Primary Health care centers	698	62.9
Self referred	412	37.1
Total	1110	100
Type of visit		
New cases	942	85
Follow up cases	168	15
Total	1110	100
Purpose of referral		
No improvement with the Primary health care physicians	223	20.0
Patients needed specialized eye care	81	7.3
For routine fundus exam for the detection of diabetic retinopathy	180	16.2
For correction of refractive error	200	18.0
For Glaucoma follow up	9	0.8
Minor surgical procedures	5	0.4
Self referred for	369	33.30
For common eye problem	19	1.71
Refractive error	24	2.1
For driving license	1110	100
Total		

Table 2: Sex-wise distribution of visual acuity is shown in the table.

Visual Category	Visual Acuity	Male n=496	Female n=614	Total	P value
Normal	6/6	312	373	685	.0000
Mild Visual impairment	Equal to or better than 6/18	46	79	125	
Moderate Visual impairment	6/18 to 6/60	91	105	196	
Severe visual impairment	6/60 to 3/60	43	52	95	
Complete blindness	No light perception	4	5	9	
Total		496	614	1110	

error, only 0.6 % (n=7) were suffering from mild while 9.2 % (n=102) and 17.9 % (n=199) were suffering from moderate and high refractive error respectively.

Presbyopia with 11.6 % (n=130) was the leading cause of refractive error followed by myopia (10.5%, n=118) and Hypermetropia (5.85%, n=65). However 1.2 % (n=13) were having amblyopia in one or both eyes. There were not statistically differences in the prevalence of refractive error among the two genders.

Conjunctival diseases was the second most common cause of ocular morbidity which consisted of 19.7% (n=219) of the total attended patients. Most of cases were suffering from Allergic conjunctivitis (68.49%, n=150) followed by mucopurulent conjunctivitis (31.51%, n=69). Dry eyes were the third leading cause of ocular morbidity in this study which consisted of 6.3% (n=70) of all cases. There was no statistically difference in the prevalence of conjunctivitis and dry eyes among both sexes.

Morbidity due to lid disorder consisted of 10.9% (n=121) of the attended patients. Chalazion was the most common cause of lid morbidity (85.95%, n=104) followed by trichiasis due to chronic trachoma (11.57%, n=14) and blepharitis (2.48%, n=3). The chalazion was most common among the age group of 30 to 40 year's. However the frequency increased till the age of 40 years and decreased after wards. Blepharitis as well as trachomatous trichiasis was more common among the elder age group.

A total of 25 cases relating to glaucoma attended the clinic of which 3 new cases of open angle glaucoma were detected (0.3%), while 17 (1.5%) cases attended the clinic for follow up treatment. There were 3 cases of ocular hypertension and 2 cases of congenital glaucoma.

Lens related disorder consisted of 4.3 % (n=48) of cases of which 27 % (n=13) were immature cataract, 54.1 % (n=26) were mature cataract and 18.75 % (n=9) were pseudophakic.

A total of 16 patients with corneal disorder attended the clinic and most of them were corneal opacities as complications of old trachoma. However one case of keratoconus also attended during this period.

Ocular trauma consisted of around 4% of the attended cases. Corneal abrasion was the most common trauma of the eyes which consisted of 47.6% of cases (n=20) followed by corneal foreign body (16.6%, n=7), traumatic subconjunctival haemorrhage (14.28%, n=6), subtarsal foreign body (7.14%, n=3) and traumatic conjunctivitis (14.28%, n=6).

Fifteen percent of the referred cases (n=167) were for screening of the diabetic patients for the detection of diabetic retinopathy. More than 80% of them were normal while 7.18 % (n=12) were diagnosed with mild NPDR (Non Proliferative Diabetic Retinopathy), 5.98 % (n=10) with Mild NPDR with Clinically Significant Macular Edema (CME) and 2.99 % (n=5) with moderate NPDR with past laser marks.

As far as the childhood ocular morbidity is concerned 1.2 % (n=13) were detected with different types of squint and were referred to tertiary center for further assessment.

Ocular morbidity consisting of nasolacrimal duct constituted 2.1% of cases with two third of cases belonging to Congenital dacryostenosis (73.9%, n=17) while 13.04 % (n=3) of each of pyocele of naso lacrimal duct and nasolacrimal duct blockage.

The details of the ocular morbidity are shown in table 3.

The utilization of clinic in term of procedure performed in

Category/Diagnosis	Number	%
Refractive error		
Presbyopia	130	
Myopia	118	
Hypermetropia	65	29.37
Amblyopia	13	
Total	326	
Conjunctival diseases		
Allergic conjunctivitis	150	
Muco purulent conjunctivitis	69	
Total	219	19.7
Dry eyes	70	6.3

Lid disorders		
Chalazion	104	
Trichiasis due to trachoma	14	10.9
Blepharitis	3	
Total	121	
Glaucoma		
Chronic glaucoma	17	
Newly detected open angle glaucoma	5	
Ocular hypertension	3	2.3
Total	25	
Lens related diseases		
Immature cataract	13	
Mature cataract	26	4.3
Pseudophakia	9	
Total	48	
Corneal disease		
Corneal opacities due to trachoma	16	
Keratoconus	1	1.4
Total	17	
Ocular trauma		
Corneal abrasion	20	
Corneal foreign body	7	
Traumatic subconjunctival haemorrhage	6	
Subtarsal foreign body	3	3.8
Traumatic conjunctivitis	6	
Total	42	
Fundus screening for the detection of diabetic retinopathy		
Normal fundus		
Mild NPDR	140	
Mild NPDR with CSME	12	
Moderate NPDR	10	15
Total	5	
	167	
Nasolacrimal duct diseases		
Congenital Daryostenosis	17	
Pyocele of the Naso lacrimal sac	3	
Nasolacrimal duct obstruction	3	
Total	23	2.1
Retinitis of pigmentosa		
Childhood eye misalignment	2	0.2
Squint	13	1.2
Total	13	1.2
Iris related disease		
Acute iritis	2	
Chronic iritis with complication	2	
Total	4	0.4
Driving License	16	1.4

Table 3: Ocular morbidity detected in the eye clinic.

the clinic consisted of medical management (41.1%,n=456), routine fundus examination for the detection of diabetic retinopathy(14.1%,n=156), minor surgical procedures(6.6%, n=73),refraction (29.37%,n=326),referral to tertiary eye

center(6.7%,n=75) and vision test for driving license (2.2%,n=24) [table 4]

As far as the satisfaction of the patients attending the clinic is

Table 4: Showing patients satisfaction level.

Questionnaires	Agree	Neutral	Disagree
The doctor seemed warm and friendly to you	93.8	6.2	
The physician completely understands about your eye problem when you saw him on the day of appointment	95.5	4.5	
You feel more convenient attending the eye clinic at PHC rather than going to Eye hospital	95	4.8	0.2
Attending PHC eye clinic saves your time and money as you get the same quality of treatment for most of your eye problems with less waiting time	91.7	7.7	0.6
You are fully satisfied with the eye specialist for follow up management advised by your hospital	90.1	9.2	0.7
Your eye specialist performs most of the minor surgeries related to your eye problem	88.9	10.5	0.6
You are satisfied with the minor surgeries or the treatment offered by your eye specialist	88.3	11.2	0.5
You get all your prescribed medicine at your PHC	85.1	14.5	0.4
You get the eye health education by your eye specialist or nursing staff	91.3	8.1	0.6

Table 5: Utilization of clinic in terms of procedure performed.

Procedure	number	percentage
Medical management	456	41.1
Routine fundus examination for the detection of diabetic retinopathy	156	14.1
Minor surgical procedures	73	6.6
Refraction	326	29.37
Referral to tertiary eye care	75	6.70
Vision test for driving licences	24	2.13
Total	1110	100

concerned, more than ninety percent of the subjects agreed that they were satisfied with the courtesy and interaction by the eye specialists, their convenience of attending the community eye care clinic, benefits of saving time and money in attending the clinic, eye health education and their satisfaction with the eye specialist for follow up management. More than eighty percent patients were of the opinion that they receive most of the minor surgeries as treatment and were satisfied with the result of the surgeries [table 5]

Discussion

This study has found the prevalence of visual impairment, low vision, and blindness is higher than what has been observed in other study.⁵

In our study the refractive error was the leading cause of the ocular morbidity which is consistent to other studies done in the same setting.⁶⁻⁷ However it was not true in one study where cataract was found the leading cause of ocular morbidity.⁸⁻⁹

As far as the type of refractive error is concerned, presbyopia was the main cause of refractive error followed by myopia and hypermetropia. This was due to the fact that a large number of adults have attended the clinic during the period of study as compared to younger generation. Presbyopia is only found in the age group of above forty years.

Conjunctivitis was the second leading ocular morbidity in our study which is similar to other studies on OM.¹⁰

Chalazion was the most common cause of lid disorder and was found significantly in the children (0-10 yrs, n=22, p=.000) and the younger age group (11-30 Yrs, n= 59, p=.000). Unlike other studies, our study has found significantly higher number of chalazion (4% Vs 9%) cases.¹¹

Dry eyes were the third leading cause of ocular morbidity followed by refractive error and conjunctivitis which is higher than what were found in other studies. The higher number of dry eyes might be due to excessive use of computer and electronic gadgets which is very evident in Saudi society.

The cataract and glaucoma among the attended patients were not as common as found in other studies but we have noticed a good number trauma patients specially suffering from corneal abrasion which were successfully treated at the center.

Though we included all the referred and self-referred patients attending the eye clinic during three months of time, it may not reflect the true prevalence of ocular disease in the community under study. The limitation of such conventional survey based on self-selected participants is well known. They might be subjects of a number of biases. However, the data obtained through this survey is of great importance for the planning in the community eye care. The experiences of the patients with ocular morbidity and eye screening attending the community eye care center in this study suggest their utmost satisfaction with these facilities. The Ministry of Health should give more stress on developing more such facilities to increase the eye care in the society.

Screening of eye for the detection of various causes of preventable blindness can effectively be done at the community eye clinic setting. The majority of the ocular morbidity can effectively be treated at the community eye care setting which can reduce the burden on the tertiary care hospital.

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