Original Article

Pattern of eye diseases at the primary health centers in a Pakistani district

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Abstract

Introduction: Pakistan has an extensive network of public facilities aimed to provide primary health care including eye care. Yet no data exist on the number and purpose of eye visits to these facilities. **Objective:** This study aimed to describe the pattern of eye diseases in public primary care hospitals in a district in Pakistan's Sindh province. **Materials and Methods:** This study was conducted in 14 randomly selected government primary health care centers 10 Basic Health Units and 4 Rural Health Centers in district Nawab shah, a central district of Sindh province. Doctors in these centers were trained in diagnosis and management of common eye diseases at the primary level and requested to record data prospectively on the total number of patient visits, total number of eye consultations and reasons for eye consultation. Data were entered and analyzed using EPI Info Software. **Results:** Over a period of one month, 9759 visits were made to the 14 selected primary health care centers. Eye diseases accounted for 1.8% of the total visits. Adults were more likely to have an eye consultation compared with children (Odds Ratio: 2.96; $P < 0.01$). Conjunctivitis (34.1%), cataract (22.0%), and corneal problems (6.9%) were the most common reasons for eye consultations. **Conclusion:** Despite solid evidence of a high burden of eye diseases at the community level in Pakistan, eye diseases accounted for only a very small proportion of the total consultations in the primary health care facilities. Efforts are needed to assess barriers to optimal utilization of existing primary health care services for eye diseases.

Key words: Epidemiology, eye diseases, pattern, primary eye care, primary health

INTRODUCTION

State-run health services in Pakistan, the 6th most populous country in the world with a population of 165 million people, are provided through a chain of primary, secondary and tertiary health care facilities.[1] Although much of the primary health care in Pakistan is provided by the private sector (for-profit and not-for-profit providers)[2] there were a total of 10396 primary health centers in the country in 2004-4554 dispensaries, 5290 Basic Health Units (BHU) and 552 Rural Health Centers (RHC).[1] Of these, BHU is considered as the backbone of primary health care including eye care, which is the most basic eye care available to individuals and families regardless of where they reside and their socio-economic conditions.[3]

Many of the public BHUs and other primary health care facilities were established in 1980s in response to the 1978 Declaration of Alma-Ata which called for a comprehensive approach whereby primary health care was seen as "the key to achieving an acceptable level of health throughout the world in the foreseeable future as a part of social development and in the spirit of social justice." A BHU caters for the health needs of a population of 5000-10,000 people.

Each BHU is staffed by a doctor, a medical technician and several support staff. An RHC caters to a population of approximately 25, 000 people and is staffed by 5-10 doctors

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(few specialists), several paramedics and other staff. Health care workers at BHU and RHC should be able to manage common eye diseases (such as bacterial conjunctivitis, trachoma, ophthalmia neonatorum, vitamin A deficiency) and refer conditions including cataract, ocular trauma and refractive errors.[4]

According to the National Program for Comprehensive Eye Care in Pakistan, eye patients account for 7% of all outdoor patients in state-run hospitals. Although critical for making informed decisions at the district level, there are no data on the pattern of eye disease seen in BHUs and RHCs in Pakistan. Hence we determined the epidemiology of eye diseases at BHUs and RHCs in Nawab shah District in Sindh province.

MATERIALS AND METHODS

In 1998, Nawab shah district had a population of 1,071,533. It is spread over an area of 4,502 km². The district was selected based on convenience. Located along the left bank of River Indus, the district is the center of Sindh (also known as the Heart of Sindh). Much of its population (more than 96%) is Muslim, while the rest are Hindus, Christians, Ahmadis and other minority groups. Majority of its people makes its living from farming. Sugarcane and wheat are the main crops.[5] The district has a dry climate and is amongst the hottest areas of Pakistan in summers as daytime temperature touches 50°C.[6]

At the time of this study, there were a total of 35 BHUs and 6 RHCs in the district. From these, 10 BHUs and 4 RHCs were selected randomly. Doctors working in the selected health centers were trained in the detection and management of common eye diseases in the out-patient department and how to record findings on the proforma that we had field tested in a BHU in Hayatabad, Peshawar. The selected centers were also supplied with eye health education material. In each center, data were collected prospectively for 4 weeks. Data were entered and analyzed using Epi 6 software (WHO Software). We used simple frequencies and proportions to describe the data. The study was approved by the Ethics Committee of Pakistan Institute of Community Ophthalmology and the District Health Officer of Nawab shah.

RESULTS

Over a period of 1 month, a total of 9759 patient visits were recorded at the 14 selected primary health care centers. Of these, 173 (1.8%) were eye consultations (odds ratio: 2.96; $P < 0.01$). Eye diseases accounted for 0.9% (42 out of 4706) of the consultations in pediatric patients compared with 2.6% (131/5053) in adult patients. There was a great variation in the proportion of eye consultations between the primary health centers (0.3-6.1%). BHU Majeed Kerio had the highest number of eye patients (26), whereas primary health centers at Daulatpur, Allah B. Magsi and Bandhi each had only 5 eye visits [Table 1]. The most common reason for an eye visit was conjunctivitis (34.1%), followed by cataract (22.0%), corneal ulcer/scar (6.9%) and pterygium (6.9%), [Table 2].

Table 1: Distribution of patients with eye disease by health care facility in selected BHU (*n* = 10) and RHC (*n* = 4) in district Nawab shah, Sindh

Name of the health facility	Children		Adults		All	
	Number of patients	Number (%) with eye diseases	Number of patients	Number (%) with eye diseases	Number of patients	Number (%) with eye diseases
BHU Mitho Jokhio	117	1 (0.9)	203	14 (6.9)	320	15 (4.7)
BHU Khar	205	4 (2.0)	231	8 (3.5)	436	12 (2.8)
BHU Majeed Kerio	233	5 (2.1)	246	21 (8.5)	479	26 (5.4)
BHU Daulatpur	205	1 (0.5)	91	4 (4.4)	296	5 (1.7)
BHU Sukhio Manahejo	110	2 (1.8)	158	12 (7.6)	268	14 (5.2)
BHU Asgar Abad	158	6 (3.8)	171	14 (8.2)	329	20 (6.1)
BHU Ramzan Rahu	192	4 (2.1)	145	9 (6.2)	337	13 (3.9)
BHU Allah B. Magsi	516	1 (0.2)	67	4 (6.0)	583	5 (0.9)
BHU N.W. Mohammad	164	1 (0.6)	163	6 (3.7)	327	7 (2.1)
BHU Badu Mahar	237	7 (3.0)	202	2 (1.0)	439	9 (2.1)
RHC Bandhi	69	1 (1.4)	163	4 (2.5)	232	5 (2.2)
RHC Daur	893	4 (0.4)	833	7 (0.8)	1726	11 (0.6)
RHC Qazi Ahmed	1411	3 (0.2)	1493	7 (0.5)	2904	10 (0.3)
RHC Shah pur Jahania	196	2 (1.0)	887	19 (2.1)	1083	21 (1.9)
Total	4706	42 (0.9)	5053	131(2.6)	9759	173 (1.8)

BHU = Basic health unit; RHC = Rural health center

Table 2: Distribution of eye diseases by diagnosis in BHU and RHC in district Nawab shah, Sindh, Pakistan

Primary reason for consultation	Frequency	Percentage
Bacterial/viral conjunctivitis	49	28.3
Allergic conjunctivitis	10	5.8
Squint	2	1.2
Vitamin A deficiency	2	1.2
Trauma	9	5.2
Refractive error	9	5.2
Pterygium	12	6.9
Glaucoma	11	6.4
Corneal ulcer/scar	12	6.9
Cataract	38	22
Others/could not be diagnosed	19	11
All	173	100

BHU = Basic health unit; RHC = Rural health center

DISCUSSION

To the best of our knowledge, this is the first study in Pakistan and other developing countries to describe the pattern of eye diseases presenting at primary health care facilities. Our study showed that only 1.8% of the patient visits in the selected 14 primary health centers were for eye diseases. Both absolute and relative number of eye consultations at this level is disturbingly low despite the fact that Pakistan has a huge burden of both vision and non-vision impairing eye conditions at the population level. For example, a study of 1670 people (of all ages) aimed to determine the burden of non-vision-impairing ocular conditions (NVIC) in a village in Chakwal district revealed that the prevalence of NVIC alone was 30.6% (306/1000 population). Even after the exclusion of presbyopia, NVIC accounted for 14.6% of NVICs.[7] The main NVIC at the community level in that study were allergic conjunctivitis (3.7%), bacterial conjunctivitis (3.5%), pterygium/pinguicula (2.6%) and acute/chronic dacryocystitis (1%).

The catchment area of a BHU is a population of 5000-10,000 people whereas that of an RHC is 25,000 people. In view of the elaborate network of health centers, one would have expected a higher number of eye consultations in the surveyed facilities as eye diseases are very prevalent in Pakistan; even more so in the summer season during which the study was undertaken. There could be several reasons for the relative as well as absolute lower number of eye consultations in our study. First, Pakistan has a weak or non-existent referral system. Most people with eye problems as well as other diseases go to secondary or tertiary health centers directly because in many cases they are more accessible than the primary centers. In addition, health care workers in primary health care facilities have neither the experience nor the equipment to make a sound diagnosis and provide appropriate treatment for eye diseases.

Second, much of the primary health care in Pakistan is provided by the private or non-for profit sector and hence patients with eye problems are more likely to go there than the public primary health centers. All these factors may have led to the underutilization of the primary health care centers. Our study also showed that 35% of eye diseases (conjunctivitis, vitamin A deficiency) are treatable at the primary health care level. They are avoidable if proper measures are taken at the community level, including improvement in hygiene and nutrition. The remaining observed disease burden (65%) need referral. If a refractionist is provided at the RHC level, much of this burden can be taken care of there.

CONCLUSION

The total number of eye consultations at the primary health centers is worryingly low despite a very high burden of eye diseases at the community level in Pakistan. Our findings call for efforts to assess barriers to optimal utilization of existing primary health care services for eye diseases.

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