Pattern of treatment compliance among eye patients in a North Indian Town



Ann. Ital. Chir., 2008; 79: 341-346

Madhu Sharma*, Amarjeet Singh**

* M.D. Community Medicine, Senior Resident, School of Public Health, Department of Community Medicine, Pgimer, Chandigarh, India ** Professor, School of Public Health, Department of Community Medicine, Pgimer, Chandigarh, India

Pattern of treatment compliance among eye patients in a North Indian town

OBJECTIVE: 1) To estimate the burden of ocular morbidity in the study area; 2) To ascertain the treatment seeking behavior of patients having ocular morbidity with particular emphasis on the degree of treatment compliance: 3)To assess the knowledge, attitude and practices of the community regarding ocular morbidity

METHODS: A cross sectional survey was conducted on Ward N.8 of Naraingarh, District Ambala, Haryana. North India from February to June 2004. Sample size was calculated to be 245.All members present in the house at the time of visit were included in the study. A focus group discussion on eye disorders was also conducted in the community.

RESULTS: A total of 73 houses (223 persons) were surveyed. The point prevalence of cases of ocular morbidity was 40% and that of ocular morbid conditions was 55%. Ocular morbidity rate was 1.4 conditions per person. Prevalence of refractive errors (26%) was highest followed by presbyopia (7.2%) and cataract (7.2%). Consultation rate for treatment was 45%. Compliance to treatment was 25%. Reasons for non-compliance were simple non-adoption of the prescribed treatment, mild nature of disease, lack of money. People bought spectacles from street vendors. Money spent on treatment of eye illnesses was less than Rs 500 in 52 % of patients and 40% of patients got treatment free of cost. Weakness, poor diet and poverty were told as etiological factors for eye diseases by residents.

CONCLUSION: A rather high prevalence of ocular morbidity was largely ignored by the sufferers. Three fourths of the patients did not comply with the treatment advised. Quackery and traditional remedies were also witnessed.

PAROLE CHIAVE: Eye disorders, Ocular morbidity, Treatment compliance, Treatment seeking behavior.

Introduction

Prevalence of ocular morbidity has been reported to vary from 20 % to 90% in many studies conducted in India ^{1, 2}. However, data is scarce on treatment compliance for ocular morbidity. Such data is important because compliance is necessary for obtaining desirable impact of the treatment advised. Any treatment will be effective only when it is taken as prescribed by the physician.

Non-compliance can be subdivided into voluntary and involuntary types. Voluntary non-compliance is patients deciding not to use their medication. Involuntary noncompliance refers to situations where medications are used incorrectly, such as eye drops missing the conjunctival sac, using incorrect medication, or following an incorrect regime. The impact of non-compliance is particularly important for patients with chronic diseases such as glaucoma ³. Against this backdrop, this study was planned with following objectives: 1) To estimate the burden of ocular morbidity in the study area. 2) To ascertain the treatment seeking behavior of patients having ocular morbidity with particular emphasis on the degree of compliance with the treatment advised. 3) To assess the knowledge, attitude and practice of the community regarding ocular morbidity.

Materials and methods

The study was conducted in an urban area, Ward no. 8, of Naraingarh, District Ambala, Haryana, from February 2004 to June 2004. This is the field practice area of Department of Community Medicine, School of Public Health, PGI, Chandigarh. This ward has around 182 houses with population of 925. Sample size was calculated to be 245 (95% confidence level; precision 5%,

Pervenuto in Redazione Settembre 2006. Accettato per la pubblicazione Febbraio 2007.

For correspondence: Dr. Madhu Sharma, House No. 3472, Sector 37-D, Chandigarh, 160036, India (e-mail: madhugupta21@yahoo.co.in).

reported prevalence 20%). With an estimate of 5 members per house, we aimed to select 50 houses through systematic random sampling. More houses were actually selected to account for non-availability of respondents. Every third house was thus included. All members present in the house at the time of visit were included in the study.

For data collection, a structured questionnaire with two parts was prepared. It was first pretested and pilot tested. Relevant changes were made. The first part of the questionnaire dealt with general information of the household and its members, and presence or absence of ocular morbidity. All the members contacted at the time of visit to the house were subjected to part I of the questionnaire. For diagnosing ocular morbidity, visual sharpen was assessed by using Snellen's chart, colour blindness was checked by using Ishiara chart, axis deviation was assessed by cover/ un-cover test and torch examination of the eye was done by the principal investigator, a postgraduate in Community Medicine. She had been trained in these procedures by a qualified ophthalmologist during her MD thesis work. Individuals diagnosed with having any ocular morbidity were subjected to part II of the questionnaire. This part dealt with queries related to treatment seeking behavior, reasons for lag in consultation for eye illnesses, compliance with the prescribed treatment and concordance between prescribed and actual treatment.

For obtaining information about the knowledge, attitude and practices of the community regarding eye illnesses, a focus group discussion (FGD) with local residents was conducted. In this, the participants mainly discussed about type of eye illnesses, their perceived etiology especially causes of blindness, their prevention, role of health services and general beliefs regarding eye diseases and their treatment. Consent of respondents was duly taken. All the data was kept confidential.

For statistical analysis univariate and bivariate analysis was done using Epi info 2000 software. Textual analysis was done for FGD.

Results

Only 224 persons were available at the time of survey in the 73 houses visited for the study. Rest of the members (150) could not be contacted. These mainly included children who had gone to school and men who had gone for their jobs. In this study female participation was more as compared to males. One lady refused to get herself examined (non response rate - 0.01%). Prevalence of cases of ocular morbidity was calculated as the total number of persons observed to be suffering from eye disorders during study period and prevalence of ocular morbid conditions as the total number of eye disorders observed on examination during that period. Since, more than one eye disorder were observed in many

patients, the point prevalence of cases of ocular morbidity (40%) was actually less than point prevalence of ocular morbid conditions (55%). Ocular morbidity rate was 1.4 conditions per person. Prevalence of refractive errors (26%, CI= 25.16 - 26.84 %) was the highest followed by presbyopia (7.2%, CI= 6.68 -7.72 %) and cataract (7.2%, CI= 6.68 -7.72 %). About 9.3% persons were suffering from more than one disorder. Presbyopia was significantly high among females as compared to males. Refractive errors, presbyopia and cataract, increased significantly with age and vitamin A deficiency, decreased significantly with age as shown in table I. Among the affected cases around half (52%) had self reported their complaints. In 19% patients, complaints related to eves were told on asking. In almost all (98%) the patients the diagnosis was verified on examination. Out of 89 patients of eye diseases only 40 (44%) had consulted a doctor. Reasons for non consultation were being asymptomatic (38.8%), less degree of discomfort (12.2%), time constraint (8%), carelessness (8%) etc. Thirty (75%) patients did not take treatment promptly. In 28% patients this lag was for more than one month. The reasons cited for this lag were financial constraint (28%), belief that it will get relieved on its own (20%), time constraint (6.7%), dependency on relatives for taking them to health care provider (6.7%), self treatment (6.7%) etc.

For treatment of eye illnesses patients preferred free eye camps (25%) over government hospitals (20%), private agencies (5%) or other sources (12.5%) like chemists for over the counter prescription, bus stand pheriwalas for eye surma and spectacles. Many patients consulted more than one agency (37.5%) for the treatment. Spectacles (32.5%) were the most common prescription. Other forms of treatment advised were operation for cataract (15%), eye drops (17.5%), eye ointments (2.5%), drops (2.5%) and tablets (2.5%). About 27.5% of the patients were prescribed more than one form of treatment. Many (40%) patients did not spent any money and got treatment free of cost, 37.5% of them spent less than Rs 100, 15% spent between Rs 100 to Rs 500, 5% of them spent between Rs 500 to Rs 1000 and only 2.5% patients spent more Rs 1000.

Out of the 40 patients who had consulted someone for the eye diseases only 10 (25%) patients complied with the prescribed treatment. For assessing concordance between the prescribed treatment and actual treatment being taken by the patient, records could be obtained only from 15 (37.5%) patients. Only three (20%) patients were using the correct treatment as prescribed e.g., using same number of spectacles as prescribed.

The main reason for non compliance was carelessness (23.3%), followed by financial constraint (20%), no relief from the prescribed treatment (13.3%), time constraint (6.7%), started some other treatment (3.3%) and other reasons (20%) e.g., no need for taking the treatment, using ear drops prescribed to other relative. The most

	Age (years)						Total		Grand	S.D.	95% CI												
Ocular morbid Conditions	<15 n=68(30.4)		15-45 n=114(51.7)		>45 n=41(18.3)		n=223(100)		Total	(%)													
	M n=33	F n=35	M n=34	F n=80	M n=13	F n=28	M n=80 (35.7)	F n=144 (64.3)															
												Refractive error*	06	03	04	16	10	19	20(25)	38(26)	58(26)	0.42	25.16-26.84
												Presbyopia*	00	00	00	06	01	09	01(1.2)	15(10.4)**	16(7.2)	0.26	6.68-7.72
Cataract*	00	01	00	00	06	09	06(7.5)	10(6.9)	16(7.2)	0.26	6.68-7.72												
Pterygium	00	01	02	06	00	02	02(2.5)	09(6.2)	11(4.9)	0.22	4.56-5.34												
Vit A deficiency*	02	04	00	02	00	00	02(2.5)	06(4.1)	08(3.6)	0.19	3.22-3.98												
Conjunctivitis	01	00	01	01	00	00	02(2.5)	01(0.7)	03(1.3)	0.12	1.06-1.54												
Other complaints*	00	00	01	03	04	03	05(5)	06(4.1)	11(4.9)	0.22	4.56-5.34												
Total	08	10	08	34	21	42	38(47.5)	85(59)	123(55)	-	-												
Grand Total	18		42		63		123(55)		-	-	-												
Cases with ocular morbidity	12(17.6)		40(35.0)		37(90.2)		89(40.4)		-	-	-												
Ocular morbidity rate per case	1.5		1.05		1.7		1.4		-	-	-												

TABLE I – Age and sexwise prevalence	of ocular	morbidity.
--------------------------------------	-----------	------------

Figure in parenthesis denote percentage

*p=0.00(with respect to age), **p=0.01(with respect to sex).

common pattern of non compliance was simple non adoption of the prescribed treatment (46.7%) i.e., spectacles advised but not bought or spectacles bought but not used. Other patterns observed were using a spectacles different from what was prescribed (10%) e.g, the number prescribed to patient was +12D but patient was using +10D in post operative aphakia; the patient was referred but did not go to the higher medical facility (13.3%) and other reasons (30%) like using a medicine different from what was prescribed, drops were not available in the market, no relief, spectacles broken but not bought again etc.

During the focus group discussion following eye disorders were enumerated by the participants "rohe/khukhre" (trachoma), "kharish" (itching) and "laali" (redness), "safed motia" (cataract), "kala motia" (glaucoma), "light bund" (blindness), "jala" (pterygium), "ratchmunda / andhrata / chakrodhy" (night blindness). Cataract was considered as milder form of disease which could be treated with the help of medicines, but "kala motia" (glaucoma), was considered less frequent but more serious leading to blindness ("light bund"). The respondent told that "kala motia" was difficult to treat.

Our respondents told that night blindness was the result of weakness because of the exertion involved in doing household work. They also consider it as a dreaded disease because many marriage proposals were rejected because of this. So much so that in earlier times prospective bride grooms were often asked to thread a needle at the time of selection by the brides parents to test their vision.

Root cause of most of diseases of the eyes was told to

be poverty by our respondents. As per their opinion poverty leads to inadequate diet especially milk which causes weakness/ strain on eyes leading to diminished vision. Physical labour was told to expose the eyes to dust leading to diminished vision. Watching TV for long duration was also told to diminish the vision as a result of prolonged exposure to colour/light, which is strenuous to the eyes. Another belief was that if teachers in the school beats/ slap the children then also their eves could get affected. Too much of traveling on two wheelers can cause strain to the eyes and hence affects the vision. Any injury to eye by foreign body e.g. during harvesting season of wheat and maize/ while driving/ on Diwali can lead to blindness. For women menopausal phase was also considered as the cause of diminished vision. They believed that during menopause there is excessive gas formation, which escaped through eyes and affected the vision.

The respondents were of the view that facilities for eye health care in the government set up were insufficient, especially free eye camps. Going to private hospitals / chemists was the only alternative left. Majority cannot afford this as one of them said, "Rs 10 is one's paying capacity and cost of the prescribed medicine is Rs 100". Hence, either people do not take any treatment or if they do so it is left in between.

According to our respondents eye disorders can be prevented by eating green leafy vegetables, looking at greenery, having green colored walls at home, studying/reading in green lights, by avoiding dust and eating good diet, by washing eyes with a bucket of fresh water daily. Other related beliefs are that "kajal/kohl/surma" helps in increasing the size of the eyes; hence it should be applied to children's eyes. "Surma" is locally made at home with "ghee" and other ingredients. They told that usually it is good for the eyes. However, sometimes it may have harmful effects also. Our respondents also told many traditional treatments for eye illnesses e.g., in Gurudwaras "jala" is treated.

Our respondents also told that a "street doctor" also comes to Naraingarh once or twice in a month. He tests the visual acuity by using a telescope like thing and charges Rs 100 for spectacles. He has a shop of watches, spectacles and sunglasses at Ambala road in a nearby town. But he also alternates as street vendor for doing refraction and selling spectacles. Regarding operations of the eyes they were aware that black sunglasses are necessary after operation and that there is photophobia for 4-5 days. They were not aware of squint as an eye disorder. The group was of the opinion that eye diseases were less common earlier and that these were mainly prevalent among city residents but now such cases are occurring in villages too.

Discussion

In consistence with other reports from north ² and central India ⁴, our study too showed a high prevalence of ocular morbidity in all age groups i.e., 55%. Refractive errors alone were the major ocular morbidity. Presbyopia was significantly high among females in the present study possibly because participation of women of higher age group was more as compared to men. The higher female participation in the present study was because the survey was done during day time, when most of the male members were out for their jobs. Children had gone to attend schools hence there participation was also less. Presbyopia and cataract was found to be increasing significantly with age, as these are age related disorders.

People's use of health services is influenced by a range of psychological, social, cultural, economic and practical factors. Eye care services are no exception. Nevertheless, there has been a tendency to assume that if eye services are available then people in need will use them, particularly if they are provided free of charge ⁵. Globally only a quarter of people in need currently use eye services (WHO) ⁶. This is supported by evidence from studies conducted in India and Nepal which demonstrate that levels of utilization of eye services, and uptake of cataract surgery ranging from 7% to 35% 6. The main reasons for no consultation in these studies were fear (damage /'spoil' eyes), cannot leave family/work responsibilities, post-operative recommendations put them off, treatment cost, can manage - treatment not necessary, too old, fatalistic - 'God's will, no escort, lack of transport.

Consultation rate in our study was also not very high. Only 50% of the patients consulted someone. Being asymptomatic and were having less degree of discomfort were the major reasons for non consultation. Major reason for lag in consultation was financial constraint. This is supported by our observation that the respondents preferred to have free camps for eye check ups. Apparently our respondents did not consider eye disorders serious enough since these were non fatal, non emergency conditions. Possibly this made it difficult for them to understand the importance of taking correct treatment and comply with the prescription.

Higher prevalence of ocular morbidity in elderly also affects the consultation rate and treatment compliance adversely since they are dependant on their relatives for taking them to health care provider. Unless actively addressed, there is scope for negative attitudes to old age to become a bigger barrier to treatment ⁵. Cataract is an age-related condition. Given demographic forecasts and life expectancy patterns, many of the people requiring surgical treatment will be women and widows. In many communities these are the people who are likely to be forgotten ⁵. In such circumstances these people rely either on self treatment or local chemists or traditional healers who are available locally. In our study also the respondents utilized the services of a street vendor for buying spectacles. He was quite popular there as he would talk to them in their local language, could come at their door step to provide treatment (no dependence) and provide 'over the counter' readymade spectacles which are inexpensive. Services of these street doctors were culturally acceptable to the consumers and their advice was easily and more acceptably followed. This shows that residents especially elderly prefer treatment which is in consonance with their life style, culture and financial status.

Language barriers can be a main hurdle for allopathic doctors to overcome in obtaining good patient compliance. Culture is a less-obvious barrier, but it definitely plays a part. When combined these two prove a powerful barrier to good compliance. In some cultures, for example, if the eye drops sting, the patient assumes they are working. In other cultures, a patient will refuse to take eye drops that sting because he or she thinks that they are having a negative effect. At the same time, many patients believe in home remedies from alternative traditional healers. They are more trusting of them and their curanderos [healers] than they are of the doctors, especially if the doctor is of a culture and language different from themselves. They may feel the doctor doesn't care to understand 7. Popularity of street doctors as observed in our study is an evidence of more acceptance doctors who culturally fits in the life style of the residents. According to Parsonian view there is 'competence gap' between health professionals and client resulting from the complex and esoteric body of knowledge which the doctor acquires through a long process of training and socialization. The disparity in power and control carves an emotional chasm between physician and patient - a chasm that is bridged only by the physician's altruism and orientation to serving people⁸.

Further aggravating the non consultation was the noncompliance for the prescribed treatment among those who consulted a doctor somehow. The most common pattern of non compliance as observed was simple non adoption of the prescribed treatment (46.7%). This is similar to finding by Ley in 1970's where after summarizing non compliance rate for four areas: medication, clinic attendance, diet and miscellaneous the average non compliance rate was around 46%. It has been reported earlier that the interaction between medical practitioner and patient is characterized by conflict rather than compliance. On one hand, patients frequently disagree with their doctors and do not comply with advice; on the other hand, they tend to be reluctant to engage in a process of negotiation and bargaining for fear of being labeled 'bad patients' 8.

Tucket et al after researching doctor-patient interactions in 1000 consultations in primary care, provided valuable insight not only into patient misperception and misinterpretation of communications but also into two other important areas directly relevant to education. They demonstrated that not only a high level of misinterpretation of messages occurs but also not insubstantial 'lack of commitment' by patients to courses of action which they had understood. They also checked the extent to which patients had forgotten what their doctor had told them. There were, in all, some 34% of consultations in which the patients either did not remember or make sense "correctly" or was not committed to key points. Patients appear to forget about 40% of what they have been told ⁸.

To explain noncompliance there are three actors who play - doctors or health professionals, secondly there is the patient, client or learner, thirdly there is what might be described as; lay opinion which include the lay system and background noise of information coming from the mass media and other educational agencies formal or informal. It is therefore wrong to consider non compliance as a mere patient failure ⁸.

The health action model explains a second reason for a possible lack of commitment to action, a point emphasized by Tucket etal ⁸. The majority of patients consulting a doctor or other health personnel will already have made their own diagnosis of their presenting problem and will have probably identified before hand the kind of presenting problem and the treatment needed for instance, some form of medication. For example for the treatment of "jala" patient visited the "gurudwaras". Failure to confirm the patient's expectations is likely to be cause for dissatisfaction and possibly, non-cooperation. More significant though is the reason why patients make their diagnosis in the first place. The explanation for this derives from patient's causal attributions and what Tucket preferred to call 'Theory of disease'.

Hence if we want to reduce non compliance, we must first explore patients' theories of eye disorders a process involving "negotiation and cooperation" rather than prescription and compliance. The probabilities of coopertation will be substantially increased to the extent that patient's accept their own (or their children) susceptibility to eye disorders, rate these as serious, and believe that the prescribed measures will be effective without at the same time entailing to many costs in terms of such barriers to action as inconvenience, discomfort, loss of money and so on.

Focus group discussion with the local residents in our study highlighted that people are aware of various types of eye diseases. They had their own theories of disease. In their conceptual framework lack of money and lack of adequate diet were the main etiological factors for diminished visual acquity. They also believed that routine eye disorders were not serious. They had strong belief for preventive eye health like, washing the eyes with plenty of water, eye muscle relaxation by looking at greenery i.e., walking in open spaces and focusing on distant objects. Such feedback needs to be utilized in enhancing the quality of interaction with the patients.

Riassunto

SCOPO DELLO STUDIO: 1. valutare l'entità numerica della morbilità oculare nell'area; 2. accertare il comportamento nel far ricorso alle cure dei pazienti con morbilità oculare, con attenzione particolare al grado di accettazione del trattamento; 3. determinare la conoscenza, il confronto ed il comportamento della comunità nei confronti della morbilità oculare.

METODI: È stata condotta una rassegna trasversale nel Reparto no. 8 di Naraingarh, Distretto Ambala, Haryana, Nord India dal Febbraio al Giugno 2004. L'ampiezza del campione venne calcolato in 245 casi. Tutti i pazienti domiciliati a casa al momento della visita vennero inclusi nello studio. Venne condotta nella comunità anche una discussione focale di gruppo sulle patologie oculari.

RISULTATI: Vennero esaminate un totale di 73 casi (223 persone). La prevalenza di casi di morbilità oculare fu del 40% e quella di condizioni oculari patologiche del 55%. L'incidenza di morbilità oculare risultò del 1.4 per persona. La prevalenza di errori refrattivi (26%) risultò la più alta, seguita dalla presbiopia (7.2%) e dalla cataratta (7.2%). L'incidenza dei consulti finalizzati al trattamento fu del 45%. La disponibilità al trattamento fu del 25%. Le ragioni dei mancati trattamenti furono semplicemente la mancata esecuzione del trattamento prescritto, l'entità modesta della malattia, la mancanza di denaro. La gente acquista gli occhiali dai venditori ambulanti. Il denaro speso per il trattamento di patologie oculari era meno di 500 Rupie nel 52% dei pazienti, e 40% dei pazienti ricevette il trattamento a titolo gratuito. Alla debolezza, carenze alimentari e povertà furono ritenute dai residenti i fattori etiologici delle patologie oculari.

CONCLUSIONI: Una consistente prevalenza di patologia oculare viene largamente ignorata dagli stessi pazienti. Tre quarti dei pazienti non sono disciplinati col trattamento prescritto. Rimedi tradizionali e anche ciarlataneria sono rilevati essere parte del comportamento ambientale.

References

1) Dalvi SD, Sathe PV: Survey of ocular morbidity with special reference to senile cataract in rural population. Indian Journal of Preventive and Social Medicine, 1985; 16(4):103-10.

2) Sehgal K, Kant L, Jain BK et al.: *Prevalence of Eye diseases in a semi urban area.* Ind J Pub Health, 1984; 28(4):189-93.

3) Buller A J, Connell B, Spencer A F: Compliance: Clear communication's critical. British Journal of Ophthalmology, 2005; 89:1970. 4) Singh MM, Murthy GV, Venkatraman R, Rao SP, Nayar S: *A study of ocular morbidity among elderly population in a rural area of central India.* Indian Journal of Ophthalmology, 1997; 45(1):61-65.

5) Donoghue M: People Who Don't Use Eye Services: "Making the Invisible Visible". Community Eye Health Journal, 1999; 12(31):36-38.

6) World Health Organization: VISION 2020: The Right To Sight. Press Release WHO/12, 18 February 1999, Geneva: WHO, 1999.

7) Karmel M: *Patient Compliance: 9 Steps for Success*. Eye Net Magazine, September 2003.

8) Tones K: *Health promotion, health education and the public health.* In: Detels R, McEwen, Beaglehole R, Tanaka H (eds): *Oxford Textbook of Public Health.* Oxford: Oxford Medical Publications, Oxford University Press, 2002:842-44.