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Research Article

Attitude of Female Undergraduates Towards Spectacle Correction of Refractive Errors

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Abstract

Background: Refractive errors (RE) are one of the leading causes of preventable visual impairment worldwide. Spectacles, contact lenses and refractive surgery are the measures used to correct the RE. Attitude of the public towards spectacles may be a limiting factor for their proper use. This study aimed to assess RE among female students of Hafr Al-Batin University and study their attitude towards spectacle use.

Materials and methods: Two hundred and twenty-nine female students were enrolled in the current study. Their refractive errors were examined through complete eye examination by ophthalmologist. Visual Acuity (VA) testing, in both eyes separately, was carried out for all students using Snellen's VA chart and their attitude towards spectacles was studied through a questionnaire.

Results: Refractive errors were diagnosed in 93 participants (40.6%). Myopia was the commonest RE (27.9%). About 7% among those not using any corrective measures were unaware of their RE. Eighty percent of participants with RE were using corrective spectacles. Sixty five percent of the total participants disagreed that spectacles are cosmetically unacceptable and embarrassing in public, but 42.2% agreed that spectacles lead to dependence and worsening of vision, 42.4% thought that spectacles can damage the eyes.

Conclusion: The current data support the urgent need for awareness programs regarding the RE and cultural beliefs and social barriers limiting the spectacle use. Early screenings are important to detect the uncorrected refractive error.

Keywords: Refractive error; Spectacle; Myopia; Hyperopia; Astigmatism; Visual impairment

Introduction

Refractive error (RE) is an optical condition in which the eye is unable to properly focus the rays of light on the retina and thereby resulting in blurred vision. Myopia, hyperopia and astigmatism are the main three types of RE. The most common disorder of the eye is myopia and high myopia may lead to complications as retinal detachment, sub retinal neovascularization and glaucoma [1]. Spectacles, contact lenses or refractive surgery are the methods used to correct the RE. The choice of correction varies depending upon factors such as cost, profession, socioeconomic status and hobbies of an individual. Spectacles, being the simplest and cheap, remain the most commonly used form of refractive correction. However, RE remain uncorrected due to reasons like recognition of the problem by an individual or family, limited availability of corrective measures and cultural barriers that may discourage the use of spectacles. Lack of knowledge and awareness of RE are important risk factors for under corrected refractive error [2]. Globally, uncorrected refractive errors (URE) are the main cause of visual impairment (VI) and the second leading cause of blindness [3].

The rates of URE are increasing owing to financial barriers, sociocultural constrains and health care access [4]. Refractive errors have been reported as the main causes of VI in many parts of Kingdom of Saudi Arabia (KSA) [5-7]. The elimination of avoidable visual disability and blindness through the correction of RE and the provision of spectacles to those with RE has been set as a priority in the World Health Organization global initiative VISION 2020 - The Right to Sight [8]. The importance of compliance to corrective spectacles and barriers to their use have been highlighted in studies conducted abroad [9,10]. The burden of VI caused by URE can also be minimized through the use of ready-made spectacles [11,12]. It is expected that attitude of the public towards corrective spectacles will deeply affect their compliance to use them. However, the attitude about corrective spectacles has not yet been studied in Saudi Arabia.

The current study was conducted to study the RE among female students of Hafr Al-Batn University through ophthalmological evaluation and to assess their attitude toward use of corrective spectacles via a formatted structured questionnaire.

Materials and Methods

Ethical issues

The study was approved by the dean of the college and the director of Hafr Al-Batin University (HBU). Informed written consent was obtained from all students involved in this study. No compensations were given to the participants, other than a free medical advice, if required, at the end of the examination.

Study design

Descriptive cross-sectional, institution-based study design was followed. A convenient sample of 299 student who agree to participate in the study was included. Two colleges namely College of Applied Medical Sciences and College of Education of HBU was randomly selected. The selected colleges were female only because the Saudi colleges were separated for male and female. Two tools of data collection were utilized; structured self-administered questionnaire and eye examination. Data collection was started from March and ended by May 2018. A structured self-administered questionnaire was developed by the researchers after review related literature. The developed questionnaire was critically reviewed by the five juries who are experts in the field of Ophthalmology medicine, Psychiatric nursing and Community Health Nursing to assess the validity of the tool.

Before starting data collection, a full explanation about the aim of study and all questionnaire parts was done to all participated students and they assured about the confidentiality of the data as it is for the purpose of research only. A pilot study of 10% of the total sample was done to test the applicability of the tool and excluded from the total sample. The questionnaire consists of questions about demographic data, students' eye complaints, family history of chronic diseases and students' attitude towards the spectacles use. All participants underwent complete eye examination by ophthalmologist. Visual Acuity (VA) testing, in both eyes separately, was carried out for all students using Snellen's VA chart. Non-cycloplegic autorefraction was performed on auto-refractor (Topcon KR-8900; Japan). Spherical equivalent (SE), which is algebraic sum of the value of the sphere and half of the cylindrical value, was used to classify RE [13]. Spherical equivalent between -0.50 D and +0.50 D was considered as emmetropia, SE≤ -0.50 D as myopia, SE≥ +0.50D as hyperopia and astigmatism was considered as any cylindrical error of at least 0.5 D without reference to the axis.

Data analysis

Data was revised, coded, entered, tabulated, and analyzed using SPSS version 20. Chisquare was used to study the significance of association. Statistical significance was kept constant at P<0.05.

Result

Socio-demographic data of the studied participants (Table 1)

Table 1: Demographic data of the studied participants.

Variable	Number 229(100%)
Age (Years): Mean Age = (20.48±2.32)	
<20	74 (32.3%)
20-24	151 (66%)
≥25	4 (1.7%)
College	
Applied Medical Sciences	171(74.7%)
Education	58(25.3%)
Academic Year	
1st.	78(34%)
2nd.	62(27.1%)
3rd.	49(21.4%)
4th.	40(17.5%)
Parents consanguinity	
Yes	112(48.9%)
No	117(51.1%)

A total of 229 students were enrolled in this study. Table 1 shows that the mean age of the sample was 20.48 ± 2.32. About two thirds of them (74.7%) were at the College of Applied Medical Sciences. Nearly half (48.9%) of the participants and their parents had consanguinity between them. About one third (34%) of the studied participants were in the first academic year at the university.

Students' present eye complaints (Table 2)

Table 2: Students' current eye complains.

Complaints	Yes	No
Blurring of vision	81(35.4%)	148(64.6%)
Excessive eye blinking/tearing	62(27%)	166(72.5%)
Eye dryness/strain	131(57.2%)	98(42.8%)
Headache	154(67.2%)	75(32.8%)
Hold things close to eyes	50(21.8%)	180(78.6%)
Sit close to watch T.V.	79(34.4%)	151(65.9%)
Thrusts head forward when looking at distance	104(45.4%)	125(54.6%)

Regarding the students' present eye complaints Table 2, the common complaints were headache, dry eye, and blurred vision (67.2% 57.2%, 35.4% respectively).

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Participants' family history about chronic diseases (Table 3)

Table 3: Participants 'family history about chronic diseases.

Disease	Yes	No
Bronchial asthma	40(17.5%)	189(82.5%)
Diabetes	81(35.4%)	148(64.6%)
Glaucoma	4(1.7%)	225(98.3%)
Hypertension	63(27.5%)	166(72.5%)
Myopia	100(43.7%)	129(56.3%)

Participants' family history of chronic diseases Table 3 revealed that myopia (43.7%), diabetes (35.4), and hypertension (27.5%) were the commonest.

Refractive errors and methods of correction (Table 4)

Table 4: Distribution of refractive errors and methods of correction.

	Refractive Error				
	E	M	H	A	
Students with spectacles	2(2.7%)	55(74.3%)	6(8.1%)	11(14.8%)	74(100%)
Students with contact lens	0(0%)	4(66.6%)	0(0%)	2(33.3%)	6(100%)
Students with refractive surgery	2(66.6%)	0(0%)	0(0%)	1(33.3%)	3(100%)
Students without corrections	136(93.1%)	5(3.4%)	2(1.3%)	3(2%)	146(100%)
Totals	140(61.1%)	64(27.9%)	8(3.4%)	17(7.4%)	(%100)229

E, emmetropia; M, myopia; H, hypermetropia; A, astigmatism.

The distribution of refractive errors among students already using glasses and those not using them is summarized in Table 4. Myopia was the commonest RE (about 27%). Out of 93 students with already known RE, majority of them (80%) had chosen spectacles to correct their RE.

Attitude toward spectacle use (Table 5)

Table 5: Participants' response to the survey questionnaire regarding spectacle use.

Statement	Agree	Neutral	Disagree	Total
Spectacles are associated with intelligence.	42(18.34%)	48(21%)	139(60%)	229(100%)
Spectacles are cosmetically unacceptable and embarrassing in public.	43(18.8%)	37(16.2%)	149(65.1%)	229(100%)
Spectacles improve appearance.	67(29.2%)	76(33.2%)	86(37.6%)	229(100%)
Spectacles lead to low self- esteem.	18(6.18%)	36(15.7%)	175(76.4%)	229(100%)
Spectacles make you less attractive to others.	21(9.1%)	34(14.8%)	174(76%)	229(100%)
Spectacles lead to dependence and worsening of vision.	98(42.2%)	51(22.3%)	80(34.9%)	229(100%)
Spectacles can damage your eye.	97(42.4%)	55(24%)	77(33.6%)	229(100%)
Young people do not need spectacles.	27(11.8%)	47(20.5%)	155(67.7%)	229(100%)
Spectacles can reduce confidence level.	29(12.7%)	54(23.6%)	146(63.8%)	229(100%)
Spectacles can put limitations on daily activities of life.	41(17.9%)	30(13.1%)	158(68.9%)	229(100%)

Regarding the students' attitude towards spectacles Table 5, the questionnaire revealed that 65.1% of the total participants disagreed that spectacles are cosmetically unacceptable and embarrassing in public and 60% disagreed with the notion that spectacles are associated with intelligence. As many as 42.2% of the respondents believed that wearing spectacles leads to dependence and worsening of vision and 42.4% thought that spectacles could damage the eyes.

Discussion

All participants of the current study were females as the study was conducted at the female campus of the university. Nearly half of the participants had a family history of myopia. In the present study myopia was found to be the most prevalent RE. Similarly, myopia was estimated to be the commonest type of RE in some recent studies conducted in KSA [14,15]. Majority of those students, who had already been diagnosed to have RE, were using spectacles.

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About 7% among of those not wearing spectacles were unaware about their RE. Regarding the participants' attitude towards spectacles, the main discouraging reasons to the use of spectacles were the beliefs that spectacles can lead to dependence and worsening of vision, may damage the eyes and can put limitations on daily activities.

The fear of injury to eyes was one of the barriers to spectacle use in a recent study conducted in India [16].

While as some students believed that young people do not require spectacles, others thought that their use may lead to low self-esteem and decreased confidence level. In a study conducted on university students 60% of the participants believed that spectacles are meant for older people only [17]. These variations may be due to different levels of knowledge and awareness about RE and spectacle use in the studied populations. Contrary to aforesaid perceptions students would like spectacles as they thought it improves their intelligence and appearance. This mixed response we believe is due to many misconceptions about the spectacles.

The current findings suggest that even students undergoing higher education in university are not well versed with the actual facts about spectacle wear and their role in refractive correction. This justifies the need for general counselling and targeted education about RE and their correction methods. This would certainly help in timely diagnosis and treatment of RE and that would mean to decrease the burden of URE. Information obtained from this study will also help university administration in planning primary eye care in university student's health care complex.

Limitations of the Study

Only female students at the two colleges of HBU were included in the present study and therefore a study involving the male students may be needed to understand if the attitude to spectacle use varies with the gender.

Conclusion and Recommendation

Lack of awareness and erroneous beliefs about spectacle wear act as barriers to lower the visual impairment caused by refractive errors. Awareness should be raised regarding the refractive errors, cultural beliefs and social barriers pertaining to the spectacle use. Early screenings are important to detect the uncorrected refractive error. The data from the current study will be useful for the rational planning and implementation of organized eye care service delivery.

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