Parents’ awareness and perception of children's eye diseases in Arar City

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Abstract

Aim: In this study, we aimed to evaluate the parents’ awareness and perception of children’s eye diseases (CED) in Arar city of Northern Saudi Arabia. Material and Method: This descriptive cross-sectional, interview-based study included a stratified sample of total 1986 Saudi parents including 1030 (52%) females and 956 (48%) males. Their age ranged from 18 to 66 years with the mean age 43.5±18.4 years. Results: Although 56.7% of the participants had sufficient knowledge about CED, there were significant differences in knowledge scores regarding ages, genders, and educational levels among the participants. The participants showed the highest scores in the questions of refractive errors in children. CED were considered as a serious issue by 1701 (85.6%) participants and 1451 (73%) participants believed that spectacles are acceptable for their kids, while only 529 (26.6%) participants showed a willingness to attend any educational session about CED. Among eye complaints in children, eye deviation was the most distressing, which might force the parents to seek immediate medical advice. For periodic examination of their children, only 700 (35%) parents had reported that they had visited the eye clinics. Family and friends’ advice was reported to be the most common source of information about CED by 733 (36.9%) participants. Discussion: The parents’ knowledge in Arar about CED is not satisfactory and in need of being improved further. More focused educational programs on early detection and proper management of CED are recommended.

Keywords
Arar City; Awareness; Children's Eye Disease; Eye Deviation; Refractive Error; Symptoms

 DOI: 10.4328/ACAM.6133  Received: 18.12.2018  Accepted: 08.01.2019  Published Online: 14.01.2019  Printed: 01.11.2019  Ann Clin Anal Med 2019;10(6): 746-51  Corresponding Author: Mujeeb Ur Rehman Parrey, Ophthalmology, Department of Surgery, Faculty of Medicine, P.O. Box: 1321, Northern Border University, Arar; KSA. T.: 00966504127126 E-Mail: drparrey@gmail.com; ORCID ID: https://orcid.org/0000-0002-2731-5438
Introduction

Good health in a child today means a healthy nation tomorrow. Children are vulnerable to many diseases including the problems in their vision. Childhood blindness and visual impairment (CBVI) in children are the major disabilities that compromise the normal development of children [1]. The management of childhood visual disability has been set by the World Health Organization as a priority in the agenda of VISION 2020, The Right to Sight [2].

Although the major portion of CBVI is preventable or treatable, many visual problems may go unnoticed by the children and/or parents or may not be reported by the children to their parents. Parent and child may differently perceive the impact of CBVI on the quality of life-related to VI in a child [3]. CBVI has a serious impact not only on the present and future quality of a child’s life but also on the economy of the country [4,6].

Studies conducted on children’s eye diseases (CED) have highlighted the importance of awareness among parents and teachers to combat the problems of vision in the children [7-10]. These studies also indicate that parents may be well versed with the common CED such as conjunctivitis, refractive errors (RE), and deviating eyes. A child cannot hide the symptoms like the rubbing of eyes, sitting close to watch television at home or a blackboard at school. But parents are usually unaware of the underlying causes leading to these problems. Knowledge of diseases and their symptoms is one of the prerequisites for health-seeking behavior [7]. This is also important as the parents are the primary caregivers for their children and have an important role in eye care-seeking behavior and this understanding becomes necessary as detection and intervention for CED can be effective when done at an early age.

Awareness among parents regarding CED has not been studied in Saudi Arabia. One retrospective study on common eye diseases in children in Jazan, Saudi Arabia emphasizes the need to promote public awareness and education for early detection of strabismus, RE, and amblyopia in children through periodic screenings in schools [11]. The current study aimed to evaluate parents’ awareness and perception of CED and improve this awareness through personal interview and discussion with the parents.

Material and Method

Ethical issues: The study was conducted after ethical approval (Ref: 42/40/49/D) obtained from the Northern Border University ethical committee. Informed consent was obtained from each participant and confidentiality was considered in all steps of data collection and analysis. This study was conducted in Arar, the capital of the Northern Border Region of Saudi Arabia with an estimated population size of around 170000 people (2010 census).

Study design: This descriptive cross-sectional, interview-based study included a stratified sample of Saudi male and female parents aged above 18 years old. A team of Arabic speaking medical students from Northern Border University (NBU), after special training on CED, were recruited along with ophthalmologists to collect the data through a personal interview for 10 to 15 minutes with every parent.

The predesigned proforma contained four parts. The first part covered the demographic data including age, gender, level of education, and past history of CED in kids. The level of education was considered as low if the participant had any education up to high school level (no education, primary, middle or high school) and high if the participant had any education post high schooling (college, institution, university). The second part contained ten multiple choice questions regarding a simple meaning and the main complaint of a five common CED including RE, squint, glaucoma, cataract, and diabetic retinopathy (DR). The third part studied the parents’ attitude towards the seriousness of CED, corrective spectacles, the efficacy of available health care services for CED and willingness of the participants to attend educational sessions about CED. The fourth part contained true or false questions regarding parents’ response to their children’s different eye complaints (red eye, itching, discharge, deviation, abnormal movements or improper vision in the classrooms or in front of televisions). The parents’ previous attendance for periodic kids’ eye examination for CED and as well as their previous attendance to CED educational sessions were discussed. The proforma was validated by the staff members of Ophthalmology and Community Medicine departments of NBU.

Data Analysis: Based on the number of people living in Arar city (2010 census) and at 95% level of confidence with an assumed precession of 5%, the minimum required sample size was 383 subjects. For questions pertaining to knowledge, persons who gave correct answers were scored as one, while persons who answered incorrectly were scored as zero. Those having scored below five out of ten were considered as having “insufficient knowledge”. All the variables were summarized and reported across the study using descriptive statistics. Comparisons were conducted using Chi-Square for binary variables. A p-value less than 0.05 was considered as statistically significant.

Results

After informed consents were obtained, 1986 parents (1030 (52%) females and 956 (48%) males) were enrolled in the study. Their ages ranged from 18 to 66 years with the mean age 43.5±18.4 years. Participants’ demographic data are shown in Table 1.

The overall knowledge score for CED showed that 1126 (56.7%) participants had sufficient knowledge about CED with an average score of 6.67 [range 3-9]. Participants showed the highest awareness score for RE questions (69%), followed by cataract (63%), DR (41%), while the lowest score was for strabismus (55%). DR (41%), while the lowest score was for strabismus.

| Parameter | Males N (%) | Females N (%) | Totals N (%) |
|-----------|-------------|---------------|-------------|
| Ages (years) | | | |
| <30 | 432 (21.75) | 202 (10.17) | 634 (31.92) |
| 30-50 | 276 (13.9) | 481 (24.21) | 757 (38.11) |
| >50 | 248 (12.48) | 347 (17.47) | 595 (29.95) |
| Education | | | |
| Low | 321 (16.16) | 314 (15.81) | 635 (31.97) |
| High | 635 (31.97) | 716 (36.05) | 1351 (68.02) |
| H/O CED | | | |
| Yes | 231 (11.63) | 295 (14.85) | 526 (26.48) |
| No | 725 (36.5) | 735 (37) | 1460 (73.51) |
| Total | 1986 (100) | | |

CED: children’s eye diseases; H/O: history of; N: number.
questions (37%). There was a significant difference in knowledge scores regarding ages, genders, and educational levels among the participants (Table 2).

As far as children’s different ocular complaints are concerned, eye deviation was the most distressing, which might force them to go for immediate medical consultation (Figure 2). The effect of the demographic variable on this attitude is shown in Table 5.

Regarding parents’ attitude towards CED, 1701 (85.6%) considered CED as serious. While 1451 (73%) participants considered spectacles and visual aids acceptable for their kids, only 529 (26.6%) participants showed a willingness to attend any future educational session about CED for more trusted information. These attitudes were significantly affected by the different study demographic variables (Table 3). Regarding participants’ attitude towards the available health services for CED, 1344 (67.7%) were satisfied, 348 (17.5%) neutral, and 294 (14.8%) were unsatisfied (Figure 1). The effect of the demographic variables on this attitude is shown in Table 4.

### Discussion

The current study has evaluated the knowledge, attitude, and behavior of the parents in Arar city towards CED. The overall knowledge score about CED showed that 56.7% of the participants had sufficient knowledge about CED with the highest scores for the questions on RE. Majority of the participants (85.6%) considered CED as a serious issue and only 67.7% were satisfied with the available health services for CED. Eye deviation was the most distressing symptom which may force them to seek medical advice. Limited number (8.8%) of participants reported that they had visited the eye clinics for the periodic examination of their children. Family and friends’ advice was the most common (37%) source of knowledge about CED for participants.

### Table 2. Participants’ knowledge of CED in relation to their demographic data.

| Parameters | Total N (%) | Sufficient N (%) | Insufficient N (%) | Chi square p-value |
|------------|-------------|------------------|--------------------|-------------------|
| Ages (years) |            |                  |                    |                   |
| <30        | 634 (100)  | 532 (51.65)      | 498 (48.34)        | 22.19, 1 < 0.0001 |
| 30-50      | 757 (100)  | 594 (62.13)      | 362 (37.86)        |                   |
| >50        | 595 (100)  | 432 (68.13)      | 202 (31.86)        |                   |
| Education  |            |                  |                    |                   |
| Low        | 635 (100)  | 338 (44.44)      | 419 (55.55)        | 101.6, 2 < 0.0001 |
| High       | 1351 (100) | 256 (36.18)      | 995 (63.82)        |                   |
| H/O CED    |            |                  |                    |                   |
| Yes        | 526 (100)  | 248 (47.01)      | 278 (52.99)        | 203.2, 1 < 0.0001 |
| No         | 1460 (100) | 978 (66.87)      | 482 (33.13)        |                   |
| Gender     |            |                  |                    |                   |
| Females    | 1030 (100) | 525 (52.44)      | 496 (47.56)        | 3.816, 1 < 0.0508 |
| Males      | 956 (100)  | 601 (56.02)      | 345 (43.98)        |                   |
| Total      | 1986 (100) | 1126 (56.69)     | 860 (43.30)        |                   |

CED: children’s eye diseases; H/O: history of; N: number.

Regarding parents’ attitude towards CED, 1701 (85.6%) considered CED as serious. While 1451 (73%) participants considered spectacles and visual aids acceptable for their kids, only 529 (26.6%) participants showed a willingness to attend any future educational session about CED for more trusted information. These attitudes were significantly affected by the different study demographic variables (Table 3). Regarding participants’ attitude towards the available health services for CED, 1344 (67.7%) were satisfied, 348 (17.5%) neutral, and 294 (14.8%) were unsatisfied (Figure 1). The effect of the demographic variables on this attitude is shown in Table 4.

### Table 3. Parents’ attitude towards CED, spectacles and education session on CED

| Parameters | Totals 100% | CED are serious No N (%) | P-value | Acceptable N (%) | Non-acceptable N (%) | P-value | Corrective spectacles for children | Willingness to attend CED education sessions No N (%) | P-value |
|------------|-------------|---------------------------|---------|------------------|----------------------|---------|-----------------------------------|-----------------------------------------------|---------|
| Gender     |             |                           |         |                  |                      |         |                                   |                                               |         |
| Females    | 1030        | 932 (90.5)                | 98 (9.5) | 40.71, 1 < 0.0001| 635 (61.6)           | 395 (38.3)| 141.6, 1 < 0.0001                 | 298 (28.9)                                   | 5.770, 1 < 0.0163 |
| Males      | 956         | 769 (80.4)                | 187 (19.6)|                   | 816 (85.3)           | 140 (14.6)| 816 (85.3)                       | 231 (24.1)                                   | 725 (75.8) |
| Ages (years) |           |                           |         |                  |                      |         |                                   |                                               |         |
| <30        | 634         | 576 (90.8)                | 58 (9.1) | 816 (85.3)        | 237 (43.1)           | 143 (22.5)| 491 (77.4)                       | 285 (37.6)                                   | 47.23, 2 < 0.0001 |
| 30-50      | 757         | 674 (89)                  | 83 (10.9)| 512 (67.6)        | 245 (32.4)           | 270 (4,2)| 200 (51.9)                       | 472 (48.1)                                   | 494 (88.1) |
| >50        | 595         | 451 (75.8)                | 144 (24.2)|                   | 578 (97.1)           | 17 (2.9) | 512 (67.6)                       | 401 (29.9)                                   | 472 (48.1) |
| Education  |             |                           |         |                  |                      |         |                                   |                                               |         |
| Low        | 635         | 500 (78.7)                | 135 (21.3)| 36.26, 1 < 0.0001| 575 (90.6)           | 60 (9.4) | 145.1, 1 < 0.0001                 | 103 (16.2)                                   | 51.83, 1 < 0.0001 |
| High       | 1351        | 1201 (88.9)               | 150 (11.1)|                   | 867 (64.8)           | 475 (35.2)| 145.1, 1 < 0.0001                 | 426 (31.5)                                   | 925 (68.4) |
| H/O CED    |             |                           |         |                  |                      |         |                                   |                                               |         |
| Yes        | 526         | 433 (82.3)                | 93 (17.7)| 6.456, 1 < 0.0111| 524 (99.6)           | 2 (0.4) | 256.4, 1 < 0.0001                 | 292 (55.5)                                   | 234 (44.5) |
| No         | 1460        | 1268 (86.8)               | 192 (13.1)|                   | 927 (65.5)           | 533 (36.5)| 256.4, 1 < 0.0001                 | 1223 (83.8)                                  | 305.3, 1 < 0.0001 |

CED: children’s eye diseases; H/O: history of; N: number.
In the current study, 56.7% of the participants had sufficient knowledge about CED, which is higher than reported in Tabuk, Saudi Arabia in 2018 by Al-Lahim et al. [12]. Elder participants showed higher scores in comparison to others, which is in accordance with data reported in 2017 in Jordan by Haddad et al. [13]. In addition, parents whose children had a history of eye diseases showed higher scores in comparison to others, which reveals the importance of experience as a source of knowledge and this is in line with the study conducted by Peruffo et al. (2018) [14]. Participants showed the highest awareness score of 69% for RE, while the lowest score was for strabismus. This is different from data reported in the study by Tabuk, which showed the highest scores for cataract, followed by glaucoma, DR and RE. However, a study in Southern India by Chew et al. (2017) showed that 75% of the general public was aware of RE [15]. These differences may be attributed to the different demographic data among the studied populations. Also, this pattern of knowledge may be due to a higher prevalence of RE in Arar, as Parrey and Alswelmi (2017) reported that RE was the leading cause of visual impairment in Arar city [16].

The current study revealed that more than 85% of parents believed that CED is a critical issue as they might cause future disabilities and limit the opportunities for their children. This point of view is in accordance with previous data published by Nwosu (1990) [17], who reported that the issue of childhood blindness is increasing, with around 70 million blind yearly caused by eye diseases starting during childhood. Spectacles were highly accepted by elderly and educated persons as they have shown more awareness which improves their attitude towards the corrective aids. However, most females did not accept spectacles for their children. Their response may be due to the concept that spectacles may put a limitation on their children's daily activities and also most females may not accept the spectacles for cosmetic reasons or social stigma. These data are in accordance with earlier published data on scores in comparison to others, which is in accordance with data reported in 2017 in Jordan by Haddad et al. [13]. In addition, parents whose children had a history of eye diseases showed higher scores in comparison to others, which reveals the importance of experience as a source of knowledge and this is in line with the study conducted by Peruffo et al. (2018) [14]. Participants showed the highest awareness score of 69% for RE, while the lowest score was for strabismus. This is different from data reported in the study by Tabuk, which showed the highest scores for cataract, followed by glaucoma, DR and RE. However, a study in Southern India by Chew et al. (2017) showed that 75% of the general public was aware of RE [15]. These differences may be attributed to the different demographic data among the studied populations. Also, this pattern of knowledge may be due to a higher prevalence of RE in Arar, as Parrey and Alswelmi (2017) reported that RE was the leading cause of visual impairment in Arar city [16].

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attitude towards spectacles and corrective lenses by Adeoti, (2009) [18] and Alohabaidan et al. (2018) [19].

Regarding the parents’ behavior towards the eye complaints in children, eye deviation was the most distressing, which can force the majority of parents to seek urgent medical advice, although the participants’ knowledge score for squint was low. This is in line with Clarke (2005) [20], who reported that squint is one of the pediatric problems which required urgent ophthalmology consultation referral for the children to save the vision and prevent amblyopia. While other complaints as red eye, discharge or itching may be self-limited and can be treated by the known eye drops or after family physician consultation.

The current study also revealed that most parents (around 65%) did not take their children for periodic examination to the eye clinics. This means that common childhood eye conditions as RE, amblyopia, and strabismus may be left untreated, which can cause lifelong visual disability. This lack of public awareness about the importance of periodic eye examination is in accordance with Katibeh et al. (2017) [21] who reported that around 73% of people in Denmark were unaware about the importance of periodic eye examination.

While the majority of the participants were satisfied with the available health services for CED, around 15% were unsatisfied. The reasons for being unsatisfied were mainly long waiting lists and a long time spent to get the service in the healthcare centers. These reasons are similar to what was reported by Mansour and Al-Osimy (1993) in Riyadh [22] and Mahfouz et al. (2004) in Aser region of Saudi Arabia [23].

For the sources of knowledge about CED, family and friends’ advice was reported to be the most common source. This is in accordance with other studies conducted by Katibeh et al. (2014) [24], Al Rashed et al. (2017) [25] and Al-Lahim et al. (2018) [12]. All of them have highlighted that family and friends’ misconceptions about eye disease are the source of wrong information about the CED.

The overall parents’ knowledge in Arar about CED is not satisfactory and in need of being improved. More focused educational programs targeting parents should be employed for early detection and proper management of CED. In addition, the awareness should be raised among parents to help them in compliance of children to the visual aids to improve and maintain proper vision in children.

### Scientific Responsibility Statement

The authors declare that they are responsible for the article’s scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

### Animal and human rights statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.

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### Conflict of interest

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