Visual problems among first grade schoolchildren In government schools in Greater Amman during 2004/2005

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This Thesis was Submitted in Partial Fulfillment of the Requirements for the Master's Degree in Public Health

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Table of contents:

Subject	Page
Committee Decision ……..	ii
Dedication …….....	iii
Acknowledgement……..	iv
List of contents …….....	v
List of Tables …….	vii
List of Abbreviation and definition of terms……..	x
List of Appendices ……	xi
Abstract (in the language of the thesis) ……	xii
Introduction ……	1
Aims and objectives of the study……	13
Methods and Procedures……	14
Results…….	23
Discussion ……	56
Conclusion and Recommendations……	66
References……..…….....	69
Appendices…….	72
Abstract (in the second language) ……	108

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Committee Decision

This Thesis (visual problems among first grade schoolchildren in government schools in Greater Amman during 2004/2005) was successfully defended and approved on

25/8/2005

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Dedication

To:

My late father,

My beloved mother,

My devoted husband,

My lovely sons,

My brothers and sisters,

I dedicate this work

Dr. Naela Al Jawhari

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List of contents

Subject	Page
1. Introduction ……	1
1.1 Background information…….	1
1.2 Justification of the study……..	4
1.3 Literature review……	7
2. Aims and objectives of the study……..	13
2.1 Aims……	13
2.2 Specific objectives……..	13
3.Material and methods/ Methods and Procedures	14
3.1 Study design	14
3.2 Variables	15
3.3 Sampling	16
3.3.1 Study population	16
3.3.2 Sample size estimation	16
3.3.3 Sampling procedure	17
3.4 Pretest	18
3.5 Data collection techniques	18
3.6 Data analysis	21
3.7 Ethical considerations	21
3.8 limitation of the study	21
4. Results ……..	23
4.1 Sample Description	23
4.1.1 Demographic variables	23
4.1.2 The state of vision of the student and family members	24
4.1.3Parent's level of knowledge about visual problems and vision testing	26
4.1.3.1 Knowledge about causes and symptoms of visual problems	27
4.1.3.2 Knowledge about importance of vision testing for children	28
4.1.3.3Knowledge about treatment and correction of visual disabilities	29
4.1.3.4 Knowledge of parents about consequences of visual disabilities	30
4.1.3.5 Provision of advice and guidance by parents to their children to keep their eyes & vision safe	31
4.1.4 Environmental factors influencing vision capacity at home depending on opinion about illumination in the child's studying room	33
4.1.5 Studying times	34
4.1.6 The child and television (T.V).	35
4.1.7 The child and the computer	36
4.1.8 The child and physical activity	37
4.1.9 Vision acuity testing for schoolchildren at school	38
4.1.10 Referring the child to the ophthalmologist	40
4.1.11Vision testing results	4
I. Vision testing results as done by the class tutor.	44
II. Results of reviewing vision page of students' school medical files as done by the tutor at the beginning of the year.	44
III. Vision testing results as done by the researcher.	46
4.2 Relationship of prevalence of visual problems with some variables:	47
4.2.1 Relationship of visual problems with sex	47
4.2.2 Relationship of visual problems with wearing eyeglasses of father,	48

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mother, and brothers& sisters	
4.2.3 Relationship of visual problems with kinship marriage between father and mother and whether 1st or 2nd degree.	49
4.2.4 Relationship of visual problems with illumination and acceptable window/room surface area ratio	50
4.2.5 Relationship of visual problems with studying hours	51
4.2.6 Relationship of visual problems with time spent watching T.V	51
4.2.7 Relationship of visual problems with time spent using computer	52
4.2.8 Relationship of visual problems with means of studying hours, time spent watching T.V and the distance far from T.V set in meters, time spent using computer, and the power of the lamp in Watt.	52
4.3 Comparison between the researcher and the tutor in vision acuity testing	53
5. Discussion ……	56
6. Conclusion and Recommendations……	66
References……..……	69
Appendices…….....	72
Annex 1 permission letters from M.O.E. to the four Educational directorates in Greater Amman.	73
Annex 2 list of names of sample of schools	74
Annex 3 the questionnaire	76
Annex 4 vision acuity testing results as done by the tutor	93
Results of vision page review.	94
Annex 5 Kappa test and J statistics	95
Annex 6 visual acuity testing plan	105
Annex 7 Work plan	106
Annex 8 Budget	107
Abstract (in the second language) …….	108

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List of tables

Table No.	Title of the Table	Page
1.	Prevalence of refractive error	4
2.	Distribution of students who should be examined in the targeted 1st ,4th , 7th ,10th grades, and the number of examined students in the 1st ,4th , 7th ,10th grades, the number of examined first grade students, the discovered Ophthalmic diseases among examined students in the 1st ,4th , 7th ,10th grades, and among examined first grade students according to scholastic years: 99/2000, 2000/2001, 2001/2002, and 2002/2003.	6
3.	Distribution of government schools having 1st grade, classrooms of 1st grade, and the 1st grade students according to educational directorate in Greater Amman 2002/2003.	17
4.	Distribution of students according to identity of person who filled in the questionnaire	23
5.	Distribution of students according to their demographic characteristics	24
6.	Distribution of students according to ever been checked for vision acuity & by whom.	24
7.	Distribution of students according to wearing eyeglasses by any of family members	25
8.	Distribution of students according to kinship between student's parents and the degree of kinship	25
9.	:Distribution of parents' knowledge about causes and symptoms of visual problems	27
10.	Distribution of parents' knowledge about importance of vision testing of their children	28
11.	Distribution of parents' knowledge about treatment & correction of visual disabilities	29
12.	Distribution of parents' knowledge about consequences of visual disabilities	30
13.	Distribution of parents' provision of advice and guidance to their children to keep their eyes and vision safe.	31
14.	Distribution of parents' responses about asking their children to keep safe their eyes and vision	32
15.	Distribution of parents' opinion about environment at home	33
16.	Distribution of the mean, std. dev. and the range of number of windows and surface area, room surface area, light power in Watt and Window surface area/ Room surface area ratio	33
17.	The distribution of students according to hours of studying	34
18.	The distribution of the mean, St. Deviation, minimum, maximum, and the range according to study times in hours.	34
19.	Distribution of students according to availability of T.V set, time spent watching T.V and how far in meters the child sits in front of T.V	35
20.	Distribution of the mean, St. Deviation, and the range according of hours spent by the child watching T.V programs and how far in meters the child sat far away from the T.V set.	35

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Table No.	Title of the Table	Page
21.	Distribution of students according to availability of a computer set, usage and hours spent using the computer.	36
22.	Distribution of the mean, std.dev. and the range of hours spent by the child using the computer.	36
23.	Distribution of students according to practicing physical activity	37
24.	Distribution of parents according to knowing of visual testing of students at school.	38
25.	Distribution of students' parents according to knowledge of referral procedures of students to the ophthalmologist	40
26.	Distribution of students' parents according to knowledge of referral procedures of students to the M.O.H accredited optic centre	42
27.	Distribution of students' parents according to reasons for not reporting to the ministry of health accredited optic centre to dispense eyeglasses free of charge	43
28.	The distribution of students according to suffering from visual problem	44
29.	Distribution of students according to results of vision page review of school student's medical file	45
30.	The distribution of students according to vision acuity testing results as done by the researcher	46
31.	Distribution of students who wear eyeglasses according to vision acuity testing results as done by the researcher	47
32.	Distribution of prevalence of visual problems among students according to sex	47
33.	Distribution of prevalence of visual problems among students according to wearing eyeglasses by mother, father, brother or sister	48
34.	Distribution of prevalence of visual problems among students according to kinship between mother and father , first and second degree kinship	49
35.	Distribution of prevalence of visual problems among students according to ratio of window/room surface area and using of artificial light with natural light	50
36.	Distribution of the prevalence of visual problems among students according to daily studying hours	51
37.	Distribution of the prevalence of visual problems among students according to daily hours spent and distance far from T.V in meters when watching T.V program	51
38.	Distribution of the prevalence of visual problems among students according to daily hours spent playing & using the computer	52
39.	Distribution of the means of studying hours, time spent watching T.V programs and the distance far from T.V set in meters, time spent using computer, and power of the lamp in Watt.	53
40.	Distribution of researcher's and tutors' vision acuity testing results for the right eye / Kappa	54
41.	Comparison between researcher's and tutors' vision acuity testing results for the right eye / J statistic table	54

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Table No.	Title of the Table	Page
42.	Distribution of researcher's and tutors' vision acuity testing results for the left eye / Kappa	55
43.	Comparison between researcher's and tutors' vision acuity testing results for the left eye / J statistic table	55

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List of Abbreviation:

WHO: World Health Organization

UNRWA: United Nations for Relief and Works Agency.

MOH: Ministry of Health

MOE: Ministry of Education

Std. Dev. = Standard deviation, Min.= minimum, Max.= maximum

Student: schoolchild Teacher = class tutor

Definition of terms:

The diopter: is the unit of measurements for refractive power and is equal to the reciprocal of the focal length of a lens in meters; a convergent lens with a focal power of one meter is said to be of +1 diopter.

Refractive errors: errors arise from a disparity between the refractive power of the anterior segment and the length of the globe i.e. light is not brought to a focus on the retina.

Amblyobia (lazy eye): is an acquired defect in monocular vision that is due to abnormal visual experience early in life such as strabismus, anisometropia, isoametropia, visual deprivation due media opacity and uncorrected refractory error. It is usually unilateral with a clear image in one eye and a blurred image in the other and may be bilateral. It occurs early within the first 6 months of life and it probably does not develop after the age of 5 years.

Hyperopia: Hyperopia is the refractive condition of the eye in which, with accommodation suspended, parallel rays of light are intercepted by the retina before coming to focus. It arises because of failure of the refractive power of the anterior segment to correlate with the length of the globe. At birth normal eyes are hyperopic and with growth of the eye there is a gradual decrease in hyperopia.

Myopia: is the optical condition in which parallel rays of light come to a focus in front of the retina

Astigmatism: is the optical condition in which the refracting power of a lens (or an eye) is not the same in all meridians. Thus, if the refractive power of the eye were 58 diopters in the vertical and 60 diopters in the horizontal meridian, two diopters of astigmatism would be present. It may be myopic, hyperopic, or mixed.

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List of Appendices

Subject	Page
Annex 1 permission letters	73
Annex 2 list of names of sample of schools	74
Annex 3 the questionnaire	76
Annex 4 vision acuity testing results as done by the tutor	93
Results of vision page review.	94
Annex 5 Kappa test and J statistics	95
Annex 6 visual acuity testing plan	105
Annex 7 Work plan	106
Annex 8 Budget	107

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Abstract:

Vision disorder is a common health problem. Learning at school needs the senses of vision, hearing, and touch for better mental and cognitive performance.

Aims: The aims of the study were to find out the prevalence of visual problems, to study the relationship between visual problems and some related variables, to find out the level of knowledge of parents about visual problems and vision screening at school, and to compare between the tutors' and the researcher's vision acuity results. In this cross sectional study, a sample of 1159 first grade students from 44 randomly and systematically selected sample of public schools in Greater Amman were tested for vision. Data were collected during the period 17 Mar. to 27th April / 2005 using a self administered questionnaire distributed to families covering variables under the study and a Snellin C chart. Cut off point for defective vision was 6/12 in one or both eyes. Data entry into the computer using SPSS program and data analysis was done by appropriate statistical tests such as Chi square, Kappa test, Youdin's J statistics.

Results: The prevalence of visual problems was 22.3 %. 17.6% had fathers who wear eyeglasses; the relationship between visual problems and father's history of wearing eyeglasses was statistically significant (P= .001). About 36% of parents were relatives.

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About 64% of parents know about causes and symptoms of visual problems. 12.7% mentioned the symptom of headache. 70% mentioned using eyeglasses for correcting vision. 33.5% use artificial light with natural illumination during daytime. 66.5% of students study less than 2 hours, 27.8% spend more than 3 hours and 44.3% sit at a distance less than 2 meters for watching T.V, Only 26.7% of students had computer sets; and 14% spend more than 3 hours using it. 2.2% of them had fallen or stumbled because of visual disability when practicing physical activity. Only 1% of students had car accidents because of visual problems. 59% of parents know about vision screening at school and referral procedures. 45.9% of parents know that the prescribed eyeglasses are dispensed free of charge from the M.O.H. accredited optic centre. 50.4% of parents know that class tutor had examined their children at the beginning of the scholastic year. 35 students were found with defective vision. 11 students were been prescribed eyeglasses. 4 of them reported to the M.O.H accredited optic centre to dispense eyeglasses. Only one student brought back a carbonized copy of the referral Form F 80 to the school. Comparison between the researcher and the class tutors for vision testing was done indicating poor agreement, and lack of validity of tutors vision testing.

Conclusion: Results indicate high prevalence of visual problems, lack of parents' knowledge about causes, symptoms, treatment, vision screening program at school, referral procedures, dispensing eyeglasses, lack of coordination, communication, and feedback between parents, teachers, and health center, inadequate monitoring and supervision role of M.O.H and M.O.E, and unreliable and invalid tutors' results.

Recommendations are regular vision screening, training of teachers, health education for tutors, students, and parents, improving communication between school, family, and health center, improving monitoring & supervision role of M.O.H and M.O.E, and the need for more researches.

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1-Introduction:

1.1 Background information:

Vision disorder is a common health problem. All doctors working within the community health services will meet many children who, on routine testing will be found to have reduced visual acuity. However, severe visual handicap requiring special education is rare. The incidence of children with visual defects rises with age. This is partly due to undetected abnormalities in younger age and in part due to the effects of growth of the eye. Muscle compensation will act to postpone diminished visual acuity due to an error of refraction; for this reason vision testing in children cannot be a once and for all process. A significant proportion of those found to be normal on testing at age 7 and 11 had severe unilateral or bilateral problems by the age of 16 (Polnay and Hull, 1985).

Visual disability has important negative consequences in terms of lost educational and employment opportunities, which result in impaired quality of life and economic loss for the individual, the family, and the society (WHO/PBL, 2000)

Uncorrected refractive errors are a significant cause of avoidable visual disability especially in developing countries. Lack of awareness and recognition of this correctable cause of disability, compounded by the non-availability of affordable services for testing and the provision of corrective lenses, has been highlighted in population surveys of blindness and visual impairment worldwide. In addition, cultural factors in some countries lead to non-compliance in the use of optical correction especially spectacles. In some countries, there are cultural barriers to the use of spectacles[2]. It is initially recommended that Myopia is defined as =>- 0.50 D and Hyperopia is defined as =>+ 2.00 D, particularly in children. Refractive correction in the adult population is considered high priority for adults with less than 6/18

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binocularly, moderate priority for less than 6/12 , and low priority for less than 6/9. For children, less than 6/12 binocularly is recommended as the criterion for a full refraction and correction (WHO/PBL, 2000).

As vision is vitally important in education, appropriate visual screening is one of the most important factors in pediatric eye care; early detection and correction of visual problems can avoid serious vision impairment or blindness. Screening is needed to detect four major conditions: strabismus (squint), amblyopia, ocular disease, and refractive errors that are entirely corrected by lenses. A variety of symptoms are attributed to errors of refraction such as ocular discomfort, pain or aching around the eyes, burning and itching of the lids, ocular fatigue, and headaches. Headache, irrespective of its cause, is commonly attributed to refractive errors (Newell and Ernest, 1978).

Vision screening must be cost effective and time efficient. The testing devices must be readily available and relatively easy to use. High sensitivity and specificity are essential to keep over- and under-referrals to a minimum. The ideal instrument should be mobile, lightweight, and easy to use by low-skilled operators, affordable and easily maintained, and usable within the resource constraints of the target region. Screening of children as they enter primary school (age 5-6 years) and secondary school (age 11-12 years) is to be recommended and assessment of the refractive error will determine the priorities for resource concentration (WHO/PBL, 2000)It was recommended that children be examined for eye problems at age 5 years and older (Rakel, 1995). The primary purpose of pre-school screening is the detection of amblyopia so that treatment may be initiated while there is still some plasticity in the visual system.

Risk Factors for myopia are genetic, environmental, malnutrition and defective diet. Myopia tends to run in families; when both parents are nearsighted, their children have a

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greater than average chance of developing myopia. It is estimated that the prevalence of myopia in late childhood is around 12% if both parents are myopic, about 8% if one parent is affected, and only 2.7% if neither parent is affected. Environmental factors, such as reading small prints or in dim /or bright light or doing excessive amounts of close work including increased study, greater use of computers and computer games, and living in a restrictive environment with poor lighting and very limited need for distance viewing, may contribute to myopia. (Mitchell, P, 2002). Malnutrition and defective diets play a large role in causing nearsightedness. A diet, which is high in carbohydrates, and low in proteins and fats, favors the development of myopia and vitamin deficiency such as vitamins A, C aggravates their effects.

Myopic children may hold their books very close to their face or be unable to read the blackboard at school. They may squint and complain of headaches and eyestrain, or tilt the head or close one eye to read or watch TV or see better, or avoid activities which require near vision. These signs often alert a teacher or parent that the child is having visual problems and that an eye exam is needed. People with impaired vision are more likely to report a history of falls and hip fractures, increased risk of car accidents, and are more likely to use health care services and community support services (Chiang et al., 1994), (Wang, et al., 1990).

Prevalence of refractory errors: Refractive error is an important common cause of visual impairment; it changes with advancing age and over time. Although there are differences in refractory error prevalence along with variations associated with ethnic and geographical differences that are apparent, detailed and definitive comparison from reports in the literature are not possible because of the non uniform measurement method and definitions. The following table, summarizing prevalence of refractive error findings from published studies from the different WHO regions, shows widely varying

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estimates and illustrates the difficulty of making meaningful comparisons (WHO/PBL, 2000).

Table 1: Prevalence of refractive errors:

Country	Author	Year	Age range in years	Myopia		Hyperopia	
				Definition	Prevalence %	Definition	Prevalence %
Madagascar	Auzemery	1995	8-14	-	0.9	-	1.1
Malawi	Lewallen	1995	18-30	=<-0.50	4.3	n.a	n.a
Canada	Robinson	1999	6	< - 0.25	6.4	n.a	n.a
Chile	Maul	2000	5-15	=<- 0.50	5.8	=>2.00	14.5
Puerto Rico	Gordon	1990	5-81	=<- 0.50	25.4	=< 0.50	47.1
USA 1	Hirch	1952	5-6	=<- 0.25	6.8	n.a	n.a
USA 2	Hirch	1962	12	=<- 0.50	12	n.a	n.a
USA 3	ANGLE	1980	12-17	<20/20	31.8	n.a	n.a
USA4 Alaska	Van Rens	1991	=>4	=<- 0.25	44.9	>0.25	11.3
USA 5	Wang	1994	43-84	=<- 0.50	42.9 -14.4	>0.25	22.1 -68.5
USA 6	Preslan	1996	4-7	=<- 0.50	3.1	>4.00	0.9
USA 7	Katz	1997	>39	=<- 0.50	36- 12.5	>0.50	15- 62
USA 8	Zadnik	1999	5-13	=<- 0.75	4.4- 17.3	n.a	n.a
Iceland	Gudmundsdottir	1999	15-28	n.a	50-80	n.a	n.a
Norway	Linge	1994	20	n.a	46.9	n.a	n.a
Russia	Aleksandrove	2000	20	n.a	66	n.a	2.3
Turkey	Turacli	1995	4-12	n.a	3.5	n.a	2.3
U.K	Cunnings	1996	8-10	=< 6/9	24.4	=< 6/9	0.6
Oman	Lithander	1999	6-12	=<- 1.00	0.6- 5.2	n.a	n.a
India	Kalikivayi	1997	3-8	n.a	8.6	n.a	22.6
Nepal 1	Garner	1999	7-18	=<- 0.50	21.7	n.a	n.a
Nepal 3	Pokharel	2000	5-15	=<- 0.50	0.3	=>2.00	1.1
Australia 1	Attebo	1999	=>49	=<- 0.50	15.5	>0.50	56.6
Australia 2	Windsor	1999	=>40	<- 0.50	17	n.a	n.a
China	Zhao	2000	5-15	=<- 0.50	21.6	=>2.00	2.7
Japan	Matsumura	1999	17	=<- 0.50	65.6	n.a	n.a
Singapor 1	Au Eong	1993	15-25	=< 6/18	44.2	n.a	n.a
Singapor 2	Wong	2000	40-81	<- 0.50	38.7	> 0.50	28.4
Taiwan 1	Lin	1988	13-16	n.a	49.6	>2.00	0.6
Taiwan 2	Lin	1999	7-18	<- 0.25	12 – 84	N,a	n.a

(WHO, Elimination of avoidable visual disability due to refractive error, 3-5 July 2000/ WHO prevention of blindness and deafness).

1.2 Justification of the study:

Jordan has a total area of 89000 sq.km. Most of population of Jordan are literate 91%. The average annual current income per capita is 1515.6 JD.The annual population growth rate is 2.6%. The estimated population was 5,350000 for the year 2004 ; and the percent of schoolchildren enrolled in schools was 98.2% in schools of all educational

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sector: government, private, UNRWA, and military since first grade is mandatory by law. The population in Greater Amman constitutes 38.8% of the total population in Jordan (Department of statistics, 2004).

Using Snellen C chart as an instrument, visual acuity screening is performed annually once at the beginning of scholastic year for all school children of all grades in all educational sector schools to identify schoolchildren who have visual disabilities and need referral to the ophthalmologist. In government (public) schools, vision screening is done by trained school teachers and the names of students with defective vision (vision acuity 6/12 or less in one or both eyes) will be given to the teacher in charge of school health services who will refer those who need further assessment to the ophthalmologist in the comprehensive health center or general hospital using three copies of form F 80. Those who need vision correction will be given the necessary prescriptions for eye glasses to be dispensed free of charge in accordance with the medical insurance contract for eye glasses. In private schools, vision screening for students is done by the physician assigned by the school and those who need eyeglasses will get them on their account. Comprehensive medical examination including ophthalmic examination is done by school health physicians for students of first, fourth, seventh and tenth classes. The following table illustrates the results of ophthalmic examination done by school health physicians at government schools all over Jordan during the four years ending in 2002/2003.

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Table 2: Distribution of students who should be examined in the targeted 1st ,4th , 7th ,10th grades, and the number of examined students in the 1st ,4th , 7th ,10th grades, the number of examined first grade students, the discovered Ophthalmic diseases among examined students in the targeted grades, and among examined first grade students according to the scholastic years:99/2000, 2000/2001, 2001/2002, and 2002/2003.(source of information is School Health Directorate annual reports for the mentioned scholastic year.

Subject	99/2000		2000/2001		2001/2002		2002/2003	
1. No. of students to be examined in 1st, 4th, 7th, 10th grades.	328591		343135		346076		352813	
2.No. of examined students in 1st, 4th, 7th, 10th grades.	317877		337170		343857		348156	
3.No. of examined students in 1st grade	82260		91339		91395		89144	
Males:	40349		44368		44753		42470	
Females:	41911		46971		46642		46674	
4. Ophthalmic diseases:	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Myopia:								
1. 1st ,4th , 7th ,10th grades	3366	1.05	3921	1.16	4192	1.21	4320	1.24
2. 1st grade:	426	0.52	489	0.54	624	0.68	540	0.61
Males:	228	0.57	267	0.60	340	0.76	251	0.59
Females:	198	0.47	222	0.47	284	0.61	289	0.62
Hyperopia:								
1. 1st ,4th , 7th ,10th grades	296	0.09	355	0.10	334	0.09	293	0.08
2. 1st grade:	33	0.04	41	0.04	69	0.08	48	0.05
Males:	24	0.06	16	0.03	28	0.06	20	0.05
Females:	9	0.02	25	0.05	41	0.09	28	0.06
Squint:								
1. 1st ,4th , 7th ,10th grades	341	0.10	309	0.09	362	0.10	277	0.08
2. 1st grade:	113	0.14	128	0.14	135	0.15	80	0.09
Males:	69	0.17	71	0.16	76	0.17	40	0.09
Females:	44	0.10	57	0.12	59	0.13	40	0.09
Corneal opacity:								
1. 1st ,4th , 7th ,10th grades	51	0.02	82	0.02	56	0.01	67	0.02
2. 1st grade:	5	0.006	16	0.02	24	0.03	3	0.003
Males:	4	0.01	8	0.02	18	0.04	3	0.007
Females:	1	0.002	8	0.02	6	0.01	0	0
Conjunctivitis:								
1. 1st ,4th , 7th ,10th grades	878	0.27	894	0.26	728	0.21	829	0.24
2. 1st grade:	281	0.34	275	0.30	248	0.27	295	0.33
Males:	152	0.38	167	0.38	133	0.29	187	0.44
Females:	129	0.31	108	0.23	115	0.25	108	0.25
Others:								
1. 1st ,4th , 7th ,10th grades	1166	0.36	1149	0.34	944	0.27	985	0.28
2. 1st grade:	256	0.31	279	0.31	264	0.29	246	0.28
Males:	169	0.42	167	0.38	138	0.31	120	0.28
Females:	87	0.21	112	0.24	126	0.27	126	0.27
Total:								
1. 1st ,4th , 7th ,10th grades	6098	1.91	6710	1.99	6616	1.92	6771	1.94
2. 1st grade:	1114	1.35	1228	1.34	1364	1.49	1212	1.36
Males:	646	1.6	696	1.57	733	1.64	621	1.46
Females:	468	1.12	532	1.13	631	1.35	591	1.27

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Going to school for the first time is a critical stage in the life of every child. Learning at school needs the senses of vision, hearing, and touch for better mental and cognitive performance, and for better social adjustment. No previous studies about visual disabilities among first grade schoolchildren in Jordan were published; however, there are a few unpublished studies conducted in Deir Abi S'ied / Irbed, Madaba, Amman and Karak about prevalence of myopia and uncorrected myopia among sixth and seventh grade schoolchildren.

This present study was conducted to explore the problem of visual disabilities among first grade schoolchildren and provide baseline data on their prevalence to help decision makers to deal with them, and to raise awareness of parents about importance of regular vision screening and early vision correction of their children and follow up eye examination schedule, with ultimate improvement of quality of life and performance at school and to support their self-confidence and personality building.

1.3 Literature review:

A pilot study on 136 school children from one school in the outer western suburbs of Sydney found that the age-specific prevalence rates observed were considerably higher than reported previously in older populations of Australians. The myopia prevalence in the age group 5-10 years old was particularly high 20.0%. (Mitchell, 2002).

The Refractive Error Study in Children in Chile, China, and Nepal is the first multi- country population based survey about refractive errors in children. Survey data reveal that there are very significant and large geographical differences in the prevalence of refractive errors and that under-corrected refractive errors are very common. The study findings support the selection of refractive errors as a priority for Vision 2020(McCarty and Taylor, 2000).

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Results from Shunyi District, China, where a total of 5884 children were examined, showed that the prevalence of uncorrected, presenting, and best visual acuity 0.5 (20/40) or worse in at least one eye was 12.8%, 10.9%, and 1.8% respectively; 0.4% of the students had best visual acuity 0.5 (20/40) or worse both eyes. Refractive error was the cause in 89.5% of the 1236 eyes with reduced vision, amblyopia in 5%, other causes in 1.5% and unexplained causes in the remaining 4%. Myopia -0.5 diopter or less was essentially absent in 5 years old children, but increased to 36.7% in males and 55% in females by the age of 15. Over the same age range, hyperopia 2 diopters or greater decreased from 8.8% in males and 19.6% in females to less than 2% in both. Females had a significantly higher risk of both myopia and hyperopia (Zhao et al., 2000). Results from La Florida, Chile, where a total of 5303 children were examined, showed that the prevalence of uncorrected, presenting, and best visual acuity 0.5 (20/40) or worse in at least one eye was 15.8%, 14.7%, and 7.4% respectively; 3.3% of the children had best visual acuity 0.5 (20/40) or worse in both eyes. Refractive error was the cause in 56.3% of the 1285 eyes with reduced vision, amblyopia in 6.5%, other causes in 4.3% and unexplained causes in the remaining 32.9%. Myopia -0.5 diopters or less in either eye was present in 3.4% of 5 years old children, increasing to 19.4% in males and 14.7% in females by the age of 15. Over the same age range, hyperopia 2 diopters or greater decreased from 22.7% to 7.1% in males and from 26.3% to 8.9% in females. Females had a significantly higher risk of hyperopia than males (Maul et al., 2000).

Results from Mechi Zone, Nepal, where a total of 5067 children were examined, showed that the prevalence of uncorrected, presenting, and best visual acuity 0.5 (20/40) or worse in at least one eye was 2.9%, 2.8%, and 1.4% respectively; 0.4% of the children had best visual acuity 0.5 or worse in both eyes. Refractive error was the cause in 56%

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of the 200 eyes with reduced uncorrected vision, amblyopia in 9%, other causes in 19% and unexplained causes in the remaining 16%. Myopia -0.5 diopters or less in either eye or hyperopia 2 diopters or greater was observed in less than 3% of children. Hyperopia risk was associated with female gender and myopia risk with older age (Pokharel et al., 2000).

In Addenbrooke's Hospital, Cambridge,UK, a preschool vision screening was offered to 8566 children. The attendance rate was 79.3%(6794 children): 348 children (5.1% of those screened) were referred to Hospital Eye Service (HES). The (HES) findings were : Refractive error (32.9%), amblyopia (29.9%), false positive referral (20.1%), strabismus (13.2%), and other ocular disorders (3.9%). The positive predictive value of screening was 79.9%. Screening detected 48 children with straight eyed amblyopia and 43 children with strabismic amblyopia. A visual acuity of 6/9 or better in the amblyopic eye was achieved by 87.2% of straight eyed amblyopes and 64.3% of strabismic amblyopes. Residual amblyopia of 6/24 or worse occurred in only 5.6% of amblyopic children (Newman et al., 2000).

Screening of 48075 seven years old children by the school health services in Singapore in 1996 found that 24.47% of them had a visual acuity worse than 6/12, making visual problems the most common health problem in Singapore.(primary health services, Ministry of Health/Singapore, School Health Services- Annual Report 1996;8). In view of this finding, a cross sectional study was conducted in 1999 to determine the prevalence rates of myopia among 4-6 years old children from 2 kindergartens and to investigate the relationship between near work and other possible risk factors and myopia in 4-6 years old children in Singapore where 414 children were examined. Results showed that males constituted 54.8% of the sample and 71% of fathers and 66.2% of mothers were myopic. Myopia was more common in children who had

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attended 3 hours or more of near work classes outside school per week compare to those with less than 3 hours per week. Children living in private housing and those with less than 7 hours of outdoor activity per week had a higher prevalence. Gender was not related to myopia. The prevalence rate of myopia in the two kindergarten was 28.7% (Tan et al.,1999).

In countries in the eastern Mediterranean, eye diseases have long been recognized as a major health problem. In Saudi Arabia, a community based blindness survey was conducted to determine the prevalence of blindness and visual impairment and to assess the prevalence of the major causes of blinding eye disease. This survey revealed that 1.5% of the population are blind and another 7.8% are visually impaired according to the WHO definition of blindness. Data obtained from subsequent studies in other eastern Mediterranean countries such as Lebanon and Jordan indicated a shift in the trend in the causes of childhood blindness from acquired causes to genetically determined causes with the adoption of mass vaccination and eradication of small pox in addition to decreased incidence of bacterial corneal ulcers. Consanguineous marriage is a common and accepted tradition in eastern Mediterranean countries . (Tabbara and Ross, 1986).

In a national survey of blindness and low vision in Lebanon in 1995, the mean age was 29 years (range 3-98), and the prevalence of low vision was 3.35% for males, and 4.3% for females. low vision prevalence, for the 3-14 years age group, was 1.3%. (Mansour et al.,1997).

In Al-Khobar, Saudi Arabia, prevalence of visual acuity defect was determined by using a Snellin 'E' chart on a random sample of 1188 male schoolchildren aged 6-19 years old at the beginning of the 1987-1988 academic year. Suitable well illuminated rooms were used to conduct the screening of students at a distance of 6 meters from the Snellin Chart. The ophthalmic school services were evaluated by reviewing of all

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students' medical cards in school files. Family questionnaires enquiring about the history of past visual check up for the students and family history were sent home with the students and answered by the head of the family. The students with defective vision who meet the referral criteria (children vision acuity 6/12 or less, children wearing eyeglasses irrespective of their vision acuity, and any gross abnormality on external eye examination, pupil reflex , and motility or cover test) were sent to the University Hospital for full ophthalmic examination. Patients were prescribed eyeglasses if required or given the necessary medications. Results indicated that 27.2% of the children had a visual acuity of 6/9 or less in one or both eyes, and 11.9% had a visual acuity of 6/12 or less. Children with consanguineous parents were found to have significantly better visual acuity than those of non consanguineous parents ($p<0.005$), less than 5% of 1st grade students had a visual check up by the school health department and nearly 75% of the screened students had never had a previous ophthalmic check-up. (Abu- Shaqara et al.,1991).

A nationwide school survey was conducted in the Sultanate of Oman to investigate the prevalence of amblyopia with anisometropia or strabismus among 6541 schoolchildren in grades one and six. Results indicated that amblyopia was found in 0.92% significantly more among strabismic children 11-12 year old (grade 6) when compared with 6-7 year olds (grade 1) $p<0.05$. It was concluded that the increased strabismic amblyopia in older children indicates development of amblyopia after the age of 6 to 7 years in an un treated population. (Lithander, 1998).

In Jordan, studies about visual problems are rare but still there are a few unpublished studies about the prevalence of myopia among schoolchildren. Results of Deer Abi Saeid/Al Koura province study conducted among 7th grade students during 1998 showed that the prevalence of myopia was 25.2% (for males it was 26.6%, and for

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females it was 24% and the relationship between myopia and sex was not statistically significant); 21.8% of the students had parents of first degree kinship, and 25.9% had parents of second degree kinship. The relationship between myopia and kinship marriage was not significant. Results showed that 75.7% of students had visual acuity testing and 24.3% of students were not tested for vision acuity. About 79% of them were tested by the class tutor at school, 20.5% by a physician, and 0.3% by a nurse. (Haddad,1998).

In another study conducted in Madaba/ Jordan in 2001 among 6th grade students, results indicated that 72.2% of students lived in urban areas. The prevalence of myopia was13.2%(prevalence was13.4% for males and was 13.1%for females). About 8% of the myopic students had parents of first degree kinship, and 8.8% had parents of second degree kinship. The relationship between myopia and kinship marriage was not significant. Results also showed that 84.8% of students had had visual acuity testing. About 93% of the students were tested by a class tutor at school, and 6.8% by a physician. Over 12.1% of students had one or both parents with myopia, 4.4% had a brother and/or sister with myopia. (Masalha, 2001).

Results of a recent study about the prevalence and risk indicators of myopia among schoolchildren in the age group of 12-17 years old in Amman, 2004, indicted that the prevalence was 17.6% (for males=15.9%, and for females =20.3%) and it was significantly associated with age being the lowest in the youngest age group (7.8% for the age of twelve, 12.4% for the age of thirteen, 20.6% for the age of fourteen, 20.2% for the age of fifteen, 20.0% for the age of sixteen, and 09.7% for the age of seventeen.). The means and std.dev. for the myopic students were: 3.07±1.53 for reading and writing (p value 0.0001) , 0.95±0.46 for working on PC (p value 0.0001), and 1.87±2.33 for playing sports (p value 0.0001). Regarding the family history of myopia, 18.1% of

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students had one myopic parent only, 24.2 had both myopic parents, 25.0% had had one myopic parent with at least one myopic brother/sister, and 42.2% had both myopic parents with at least one myopic brother/sister. (Izz Eddin et al., 2004).

2-Aims and Objectives:

2.1-Aims

To identify the magnitude of visual disabilities among first grade school children in government schools in Greater Amman, to study the relationship between visual disabilities and some related variables, to assess the knowledge of parents about issues related to visual problems and vision screening program at school, and to compare between students' vision testing results as done by teachers and the researcher during the year 2005.

2.2-Specific objectives:

2.2.1. To find out the prevalence of visual problems among first grade students in government schools in Greater Amman during the year 2004/2005.

2.2.2. To study the relationship between visual problems and some related variables: sex, wearing eyeglasses by any of family members, consanguineous marriage whether first degree or second degree, illumination, studying time in hours, watching T.V and using computer, and the distance at which the students sit from the T.V to watch programs during the year 2004/2005.

2.2.3. To find out the level of knowledge of parents of first grade students in Government schools in Greater Amman about the following issues regarding visual problems:

- causes and symptoms of visual problems,

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- importance of visual screening for early detection, treatment and correction
- consequences,
- giving advice to their child to avoid harmful practices that affect vision,
- the importance of nutrition and micronutrients on vision,
- visual acuity testing at school,
- referral procedures for those who need ophthalmic consultation in the comprehensive health center or general hospital, and if it is known that the eye glasses will be dispensed free of charge in accordance with the medical insurance contract for eye glasses after vision testing,
- home environmental factors influencing vision capacity such as intensity of illumination in the place of study and its type whether (natural, artificial), surface area of study place, number of windows and surface area of windows, time of study (day or night) and for how long, watching television and using computer and the distance at which the students sit to watch T.V programs.
- Practicing physical activity

- 2.2.4. To compare between tutor 's vision acuity testing results and the researcher's assessment carried on at the time of conducting the study.

3-Methods and Procedures:

3.1-Study design:

A descriptive cross sectional study of visual problems among first grade schoolchildren in government schools in Greater Amman 2005 was used.

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3.2-Variables:

1. Vision acuity: Normal vision acuity is 6/6 and 6/9 for each eye. If vision acuity is found to be in the range of (6/12)-(6/60)Vision is considered abnormal (school health referral criteria of students with defective vision / M.O.H.& M.O.E).
2. Variables related to child such as sitting closely in front of T.V set (how far in meters the students sat in front of T.V), time of studying (day or night) and time spent in hours for reading & doing home work, time spent watching television, and using computer, and practicing physical activity.
3. Parent's knowledge about:
   - causes of visual disabilities, symptoms of visual disabilities (excessive tearing, sensitivity to light, frequent eye rubbing, tilting the head or closing one eye to read or watch TV or see better, avoiding activities which require near vision, headaches or tired eyes), if the child has any of these symptoms, and consequences of visual problems
   - importance of visual screening for early detection, treatment and correction, consequences of visual disabilities.
   - giving advice to their child to avoid harmful practices that affect vision (Practices).
   - the effect of nutrition and micronutrients e.g. vitamin A & vitamin C and iron on vision by asking questions about intake of adequate balanced food (meat, eggs milk, dairy products, carrots and micronutrients such as vitamins A & C and iron.
   - visual acuity testing at school, referral procedures for those who need ophthalmic consultation in the comprehensive health center or general hospital, and vision correction by the necessary eye glasses, and if it is known

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that the eye glasses will be dispensed free of charge in accordance with the medical insurance contract for eye glasses after vision testing.

- home environmental factors influencing vision such as intensity of illumination in the place of study and its type whether (natural, artificial), surface area of study place, number and surface area of windows

5. Other variables:

Sex of child, family size, father's level of education, mother's level of education, employment status of father and mother, family monthly income, wearing eyeglasses for father, mother, brothers and sisters, degree of kinship marriage between father and mother whether first or second degree.

3.3-Sampling;

3.3.1. Target population:

The target population is first grade school children in government schools in Greater Amman

3.3.2. Sample size estimation:

A sample of 10% of government schools having 1st grade was selected by a simple systematic sampling procedure. The number of government schools with 1st grade in Greater Amman is 372, the number of 1st grade classrooms 789 classes and the number of 1st grade students in greater Amman was 24287 for the scholastic year 2002/2003.

The sample size of students was estimated by applying the following formula: $n = z^2pq/d^2$ Where n = sample size,

z = Confidence limits 97.5% (2.24)

p = anticipated prevalence 0.25

q =1-p = 0.75

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d = precision level (0.034),

n X D= D: Design effect to compensate for the cluster sampling technique and to be as close as possible to the simple random sample. (Gabler et al., 2005)

813 X 1.5 = 1220 students = 1200 students

3.3.3. Sampling procedure:

After getting the permission for conducting the study from The University of Jordan and Ministry of Education, the Directorate of planning/ Department of statistics provided an electronic copy of the needed data and then a sample of schools was selected from available data in the electronic copy.

The total number of government schools with 1st grade in Greater Amman was 372, the number of 1st grade classrooms was 789, and the number of 1st grade students was 24287 for the scholastic year 2002/2003,

A list of names of all government schools in Greater Amman having 1st grade (female, male, and coeducational schools), the numbers of classrooms and the numbers of students in each educational directorate for the scholastic year 2002/2003 are shown in Table 4

Table 3: Distribution of number of government schools having 1st grades, 1st grade classrooms, and 1st grade students according to educational directorate in Greater Amman / 2002/2003.

Educational directorate	No. of government schools with 1st grade	No. of classrooms of 1st grade	No. of students in 1st grade
1st educ. directorate	70	195	6122
2nd educ. directorate	105	171	4671
3rd educ. directorate	90	118	2731
4th educ. directorate	107	305	10763
Total	372	789	24287

Source: MOE/ Directorate of planning/ Department of statistics 2002/2003

The average number of students in 1st grade classroom in government schools was = 30 students. Initially a 12% systematic sample of the government schools having

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1st grade from each educational directorate was selected, then one class from each school was randomly selected. A total of 44 classrooms were included in the study.(See Annex 2). The total number of schoolchildren studied was 1200 students; This sample size is sufficient to estimate the prevalence of visual problems with a 97.5% assurance level and a margin error of .034.

3.4 Pretest:

A pilot test was conducted on twenty students in the 1st grade students in order to know the time needed to distribute and collect the questionnaires, evaluate the reactions of respondents to the research procedures, assess any need for questionnaire revision and appropriateness of statistical procedures. According to the results of the pilot study, the questionnaire was modified.

3.5 Data collection:

- After getting the permission from MOE, letters from each of the four educational directorates were given to the researcher to deliver it to the principals of the sample of government schools to facilitate the researcher's job and to distribute the questionnaires for the targeted students and to collect data.(See Annex 1).
- Then the researcher received training on vision acuity testing by the optometrist at University Hospital for one day, and the instructions of vision acuity testing were revised (Annex 6).
- Data collection tool is a self administered questionnaire covering variables under the study distributed for student's family (Annex 3) and measurements.
- The researcher started implementation of the study on 17th of Mar. 2005 up to 27th April in two steps.(See Annex 7)

The first step was visiting the sample of government schools having 1st grade to distribute the questionnaires to students during the period from 17th to 24th of

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Mars /2005. The researcher met the principals of the schools and 1st grade class tutors. The aims of the study, the parts and contents of the questionnaire were explained to them, and were informed about the importance of completely filling in the questionnaires by parents and giving them back to the class tutors, testing vision acuity of 1st grade students by class tutors and the role of class tutors to ensure complete filling & giving back of the questionnaires.

The second step was revisiting the sample of schools a week later during the period from 25th of Mars. up to 27th of April, i.e. 5 weeks, to do vision acuity testing by the researcher using the same vision acuity testing tool used by the tutor and recorded the results of testing in the allocated part of the questionnaire as well as reviewing the vision page.

Absent students were rolled out because it was difficult to come back to the school and did vision acuity for absent students. Also students who did not fill in or forgot their questionnaires at home were tested for vision acuity but they were rolled out from analysis. The metric dimensions of the classroom were checked first as well as the illumination (natural and artificial) if they were acceptable so as to decide where to do vision testing either in the classroom if it were suitable or in another room such as the library or laboratory or administration room if the classroom was not suitable. Just before starting vision testing, a brief health education was given to the students about vision and its importance in all aspects of enjoying life, school achievement, protecting ourselves and others, importance of telling parents if anyone can't see well, can't read and write well so as to consult the ophthalmologist who may prescribe medicine or eyeglasses, and telling the students about annual vision testing at school for all schoolchildren by the class tutors to discover and correct visual problems early and showing them the vision testing

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instrument and explaining to them how to point out to the direction of the opening of the letter C upward, downward , to the right or left.

Daily after finishing the work, the questionnaires were revised to make sure that most of the data were almost filled and each questionnaire was defined by name of school and name of student and questionnaire number, and were given to the researcher assistant who is well trained on SPSS data entry and analysis.

The following techniques were used in the process of data collection:

- Self administered questionnaire for parents covering variables under the study (Annex 3).
- Measurements**:**

Using a standard wall-mounted Snellen C chart; Vision acuity testing was done by the tutor in the same day or the next day of distributing the first part of the questionnaire to the students and results were recorded in the part allocated to the tutor. Vision acuity testing was done also by the researcher after collecting the questionnaire filled in by the student's family member, and the researcher recorded her findings in the questionnaire in the part allocated to her. Also the researcher reviewed vision page of schoolchildren medical files at school.

-Cut off point:

Refractory error is considered if vision acuity is found to be 6/12 or more in one eye (school health referral criteria for students/ MOH and MOE) and the student will be referred to the ophthalmologist in the comprehensive health center or in general hospital.

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3.6 Data analysis

- The SPSS computer package was used in data entry and data analysis was done.
- Data results were tabulated for frequency and percentage descriptions and relevant variable description.
- Statistical tests such as Chi square was used to test the relationship between different variables, independent samples t test, and Kappa was used to measure agreement between the tutor and the researcher vision testing results. (Cohen, 1960). Youdin's J statistics was used to test reliability of tutors' vision acuity testing results. (Youdin, 1950).

3.7 Ethical considerations:

- Permission was obtained from Ministry of Education to conduct the study.
- Confidentiality was addressed when requesting names and telephone numbers.
- Parents were informed about the aims of the study about the importance of their participation in the study and the need to answer all the questions properly for follow up purposes.
- Students who were attending the class at the time of conducting the study were tested for vision acuity although they did not bring back the questionnaires.
- The researcher referred the schoolchildren with visual disabilities to the ophthalmologist in the comprehensive health center or general hospital.

3.8 Limitations of the study:

Through the period of distributing and collecting the questionnaires, some constrains were met with due to difficulties in communications, morning and afternoon shifts, and some school sites were difficult to be reached because the main road was under repair so another long side road was tried to reach them, the non response of some students' families and refusal to fill the questionnaire or losing it.

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During the 2nd visit, it was found that some tutors did not collect the questionnaires from the students or did not do vision acuity testing for students, so another date was given to allow the tutor to do vision acuity testing and collect the questionnaires from the students. Some tutors were attending computer class outside school, or the intended class was in a picnic. This course of actions resulted in loss of time, efforts, and money.

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4. Results:

4.1 Sample description

4.1.1 Demographic Variables:

The study population consisted of 1159 schoolchildren selected from 44 government schools in Greater Amman. Table 4 shows the distribution of students according to identity of the person who filled in the questionnaire. Most of the questionnaires (89.7%) were filled in by parents, (44.1% by the fathers and 45.6% by the mothers), 7.5% were filled in by brother or sister, 1.2% were filled in by uncle, 1.3% were filled in by aunt, 0.2% were filled in by neighbor and 0.1% by teacher.

Table 4: Distribution of students according to identity of the person who filled in the questionnaire:

	Freq	%
Father	508	44.1
Mother	525	45.6
Brother or Sister	86	7.5
Uncle	14	1.2
Aunt	15	1.3
Teacher	1	0.1
Neighbor	2	0.2
Total (Missing 8)	1151	100%

Results in Table 5 show that males constituted 42.5% of the sample of students. The range of family size was 3-18 members including father and mother, and the average number of the family was 6.8 members. 72% of the students had families of 5-8 members as their family size.

For family monthly income, results show that 10.3% of these families had monthly income in the category of <100 J.Ds, about 48.4% of the families had monthly income of 100-199 J.Ds, about 25.1% had monthly income of 200-299 J.D, 9.6% had monthly income of 300-399 J.Ds, 6.8% had monthly income >400 J.Ds. Monthly income categorization is adopted from Household Expenditure and Income Survey 2002/2003, Department of statistics.

The educational level was defined according to Employment and Unemployment Survey 2003/ Department of Statistics. The majority of the sample of students had parents with secondary and preparatory schooling, 38.2% of the mothers and 29.3% of

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the fathers had secondary educational level while 21.9% of the mothers and 24.9% of the fathers had preparatory schooling. The percentage of illiterate was 7.1% for mothers and 4.1% for fathers. For higher education; 14.8% of the fathers and 15.5% of the mothers had intermediate diploma while 9.1% of the fathers and 3.9% of the mothers had university degree B.A and above. For the employment status, 90.3% of students' fathers and 7.4% of students' mothers were employed.

Table 5: Distribution of students according to their demographic characteristics

Item	Freq.	%		
Gender: Male	493		42.5	
Female	666		57.5	
Family size:				
<=4 Members	97		8.8	
5 _8 Members	796		**72**	
>=9 Members	213		19.3	
Family monthly income:				
0-99	117		10.3	
100-199	546		**48.1**	
200-299	285		**25.1**	
300-399	109		9.6	
>400	77		6.8	
Item	**Father**		**Mother**	
	Freq.	**%**	**Freq.**	**%**
Educational level:				
Illiterate	47	**4.1**	80	**7.1**
Read & write	31	2.7	23	2
Elementary	95	9.3	86	7.6
preparatory	283	**24.9**	248	**21.9**
Basic	26	2.3	33	2.9
Vocational apprenticeship	51	4.5	11	1
Secondary	334	**29.3**	433	**38.2**
Intermediate diploma	168	**14.8**	176	**15.5**
University B.A and above	103	**9.1**	44	**3.9**
Employment status:				
Employed	1036	**90.3**	85	**7.4**
Not employed	111	9.7	1068	92.6

4.1.2. The state of vision of the student and family members:

The vision status of the students and family members was assessed by asking whether the students' vision acuity had ever been checked and by whom, results in Table 6 show that only 18.8% of parents reported that their children had been checked for vision acuity. 47.5% of them had been checked by ophthalmologist, 30.4% had been

Table 6: Distribution of students according to ever been checked for vision acuity & by whom.

Item	Freq.	%
Has vision acuity of your child in first grade ever been checked?		
Yes	217	18.8
No	919	**79.4**
I don't know	21	1.8
Total (Missing 2)	1157	100
If yes, who did check her / his vision?		
Physician	66	**30.4**
Nurse	26	12
Ophthalmologist	103	**47.5**
Optometrist	22	10.1
Total	217	100

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checked by physician, 12% had been checked by nurse, and 10.1% had been checked by optometrist.

For history of wearing eyeglasses by the student before entering the school, or wearing eyeglasses by any of family members, Table 7 shows that 2.3% of students in 1st grade wore eyeglasses before entering the school; 12.3% of the mothers wear eyeglasses and 17.6% of the fathers and 16.2% of the students' brothers & sisters wear eyeglasses.

Table 7 :Distribution of students according to wearing eyeglasses by any of family members

Did the student wear eyeglasses before coming to school	**Freq.**	**%**
Yes	27	**2.3**
No	1127	97.7
Total (Missing 5)	1154	100
Does student's mother wear eyeglasses?		
Yes	141	**12.3**
No	1009	87.7
Total (Missing 9)	1150	100
Does student's father wear eyeglasses?		
Yes	203	**17.6**
No	952	82.4
Total (Missing 4	1155	100
Do any of student's brothers& sisters wear eyeglasses?		
Yes	187	**16.2**
No	966	83.8
Total (Missing 6)	1153	100

Results in Table 8 show that 36.6% of parents were relatives. 17.6% of parents were first degree relatives and were cousins to father side and 4.9% were first degree relatives and were cousins to mother side. 7.5% of parents were second degree relatives and were sibling cousins to father side, 6.3% of parents were second degree relatives and were sibling cousins to mother side, and 0.2% of them do not know if parents were relatives or not.

Table 8: Distribution of students according to kinship between student's parents and the degree of kinship

Item	**Freq.**	**%**
Not relatives	**733**	**63.4**
First degree relatives: Father	**203**	**17.6**
mother	**56**	**4.9**
second degree relatives: Father	**86**	**7.5**
mother	**73**	**6.3**
Don't know	**2**	**0.2**
Total (missing 6)	1153	99.9

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4.1.3 Parent's level of knowledge about visual problems and vision testing

Parent's knowledge, attitude, and practices about visual problems and vision testing was assessed by asking questions about causes and symptoms of visual problems, choices of treatment, impact of visual problems if left without treatment, importance of annual vision testing of their children especially preschool vision acuity testing for early detection and correction of visual problems and importance of intake of balanced food.

Practices were assessed in relation to giving guidance and advice to their children and to comply in doing healthy acts that protect their eyes and vision, improving indoor environment at home, time of studying, sitting & watching television, using computer when available, sport activities, and food intake.

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4.1.3.1 Knowledge about causes and symptoms of visual problems:

Results in Table 9, showed that 64.1% know the causes of visual disabilities; 29.8% mentioned all causes, 21% identified Diabetes mellitus, hypertension and diseases of the retina, 16.9% identified genetic causes.

One third of those who filled the questionnaire (67.5%) answered they know the symptoms of visual disabilities, 19.4% of the responses were for all the listed symptoms, only 12.7**%** of the responses mentioned the symptom of headache.

Table 9: Distribution of parents' knowledge about causes and symptoms of visual problems

Item	Freq.	%
Do you know the causes of visual disabilities in general?		
Yes	740	64.1%
No	414	34.9%
Total (Missing 5)	1154	100%
If yes: choose from the listed causes what you think is true:		
-Genetic	210	16.9
-Malnutrition	180	14.4
-Diabetes mellitus, hypertension, diseases of the retina	262	21
-Direct eye trauma, injury, foreign body	102	8.2
-Environmental: bad illumination, small size housing	106	8.5
-All	371	29.8
-None	5	0.4
-Others: watching T.V	5	0.4
working with car electricity	1	0.1
Using computer	1	0.1
Holding book close to eye	2	0.2
Direct looking to sun	1	0.1
Total responses	1246	100%
Do you know the symptoms of visual disabilities?		
Yes	780	67.5
No	375	32.5
Total (Missing 4)	1155	100%
If you know the symptoms: choose from the listed symptoms what you think is true:		
-Shedding tears	73	3.8
-Frowning and pressing eyes	147	7.6
-Tilting the head	135	7
-Eye fatigue when at close work or reading	258	**13.4**
-Not clear, blurred vision, double vision	241	**12.5**
-Shutting one eye to see better	116	6
-Pain in the eye cavity	92	4.8
-Rubbing the eyes and redness	129	6.7
-Headache	245	**12.7**
-Vertigo	114	5.9
-All	374	**19.4**
-None	2	0.1
Total responses	1926	100%

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4.1.3.2 Knowledge about importance of vision testing of children:

Table 10:Distribution of parents' knowledge about importance of vision testing of their children		
Is it necessary to test student's vision acuity annually even if it is normal?	**Freq.**	**%**
Yes	1059	92.2
No	28	2.4
I don't know	62	5.4
Total (Missing 10)	1149	100%
Is it necessary to do preschool vision acuity testing for students in 1st grade for early detection & correction of visual disabilities		
Yes	1064	92.4
No	31	2.7
I don't know	56	4.9
Total (Missing 8)	1151	100%
Is it necessary for the student to visit an ophthalmologist to identify visual problems that he/she suffered?		
Yes	1060	92.7
No	64	5.6
I don't know	20	1.7
Total (Missing 15)	1144	100%
If no, where should the student's father take her/him to identify the problem?		
Physician	19	28.8
Nurse in health centre	21	31.8
Optometrist	25	37.9
Others: school physician	1	1.5
Total	66	100

Most of the respondents agree on importance of vision testing of children as shown in Table 10, 92.2% reported it is necessary to test student's vision acuity annually even if it is normal, and 5.4% reported they don't know and 2.4% reported it is not necessary and when asked about pre school vision acuity testing for first grade schoolchildren 92.4% reported it is necessary to do it for early detection and correction, and 4.9% reported they don't know while 2.7% reported it is not necessary.

When asking about necessity of visiting an ophthalmologist to identify problems of vision suffered, 92.7% reported it is necessary, 1.7% reported that they don't know if it is necessary, and 5.6% reported it is not necessary, and those who reported it is not necessary to visit an ophthalmologist choose to see another health provider; 37.9% choose to take the student to optometrist, 31.8% chouse nurse in health center, 28.8% choose physician, and 1.5% others such as school physician.

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4.1.3.3 Knowledge about treatment and correction of visual disabilities:

Knowledge of parents about treatment and correction of visual disabilities was assessed by asking them if they know or they don't know that visual problems can be treated and vision can be corrected by the given choices. Results in Table 11 showed that 90.4% of them know that visual disabilities can be treated and corrected, but when asking them about the given choices of treatment and correction it was found that 70.2% answered yes for using suitable eyeglasses only, 20.4% answered no, and 9.4 answered they don't know. Also it was found that 79.5% answered yes for the choice of changing lenses of eyeglasses on regular vision testing, 7.5% answered no, and 13% answered they don't know. For the choice of surgery and then using suitable eyeglasses, 60.5% answered yes, 15.6% answered no and 23.9% answered they don't know. But for the choice of nutrition and maintaining good diet especially micronutrients, meat, milk and dairy products, carrots, tomato, cucumber, paprika and parsley, 86.7% answered yes , 2.8% answered no, and 10.5% answered they don't know.

Table 11:Distribution of parents' knowledge about treatment & correction of visual disabilities

Do you know that visual disabilities can be treated and corrected?	**Freq.**	**%**
Yes	1028	90.4
No	109	9.6
Total (Missing 22)	1137	100%
Do you know that visual disabilities are treated and corrected by:		
-Using suitable eyeglasses only		
Yes	798	70.2
No	232	20.4
I don't know	107	9.4
Total (Missing 22)	1137	100
- Changing lenses of eyeglasses on regular vision testing		
Yes	900	79.5
No	85	7.5
I don't know	147	13
Total (Missing 27)	1132	100
-Surgery and then using suitable eyeglasses		
Yes	683	60.5
No	176	15.6
I don't know	270	23.9
Total (Missing 30)	1129	100
- Maintaining good diet especially micronutrients, meat, milk and dairy products, carrots, tomato, cucumber, paprika, parsley		
Yes	981	86.7
No	32	2.8
I don't know	119	10.5
Total (Missing 27)	1132	100

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4.1.3.4 Knowledge of parents about consequences of visual disabilities:

Attitude of parents about consequences of visual disabilities if not treated was assessed by grading their agreement to the consequence into strongly agree, agree, disagree, and strongly disagree. Table 12 showed that for the consequence of reduced performance at school: 59.6% of parents strongly agree, 33.8% of them agree, 5.6% disagree and 1% disagree. For the consequence of loss of employment opportunities: 36.7% of parents strongly agree, 40.5% agree, 18.3% disagree, and 4.5% strongly disagree. For the consequence of increased chance of child's exposure to falling and stumbling: 45% of parents strongly agree, 45.9% agree, 7.2% disagree, and 1.8% of them strongly disagree. For the consequence of the child avoids participation in playing with peers at school or at home: 34.5% of parents strongly agree, 41.9% agree, 20.5% disagree and 3.2% strongly disagree. For the consequence of the child is psychologically affected, becomes isolated, and doesn't share peers with activities: 37.3% of parents strongly agree, 37.3% agree, 19.8% disagree and 5.6% strongly disagree.

Table 12: Distribution of parents' knowledge about consequences of visual disabilities

Item	Freq.	%
In your opinion, visual disabilities if not treated may lead to:		
-Reduced performance at school:		
Strongly agree	682	59.6
Agree	387	33.8
Disagree	64	5.6
Strongly disagree	12	1.0
Total (Missing 14)	1145	100
- Loss of employment opportunities		
Strongly agree	420	36.7
Agree	463	40.5
Disagree	209	18.3
Strongly disagree	51	4.5
Total (Missing 16)	1143	100
- increased chance of child's exposure to falling and stumbling		
Strongly agree	516	45.0
Agree	527	45.9
Disagree	83	7.2
Strongly disagree	21	1.8
Total (Missing 12)	1147	100
-The child avoids participating in playing with peers at school or at home		
Strongly agree	394	34.5
Agree	478	41.9
Disagree	234	20.5
Strongly disagree	36	3.2
Total (Missing 17)	1142	100
- The child is psychologically affected and is isolated without sharing activities with peers		
strongly agree	427	37.3
Agree	427	37.3
Disagree	226	19.8
Strongly disagree	64	5.6
Total (Missing 15)	1144	100

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4.1.3.5 Provision of advice and guidance by parents to their children to keep safe their eyes and vision (Practices):

Results in Table 13 showed that 98.5% of parents provide advice and guidance to their children; 77.7% of parents ask their children to relax their vision for few seconds during reading and when doing school work or close work every 30-60minutes by looking to distant objects through window. 85.7% of the parents ask their children to put on the glasses if were prescribed eyeglasses most of the time except when in bed. 94.3% of the parents ask their children not to use television or computer if available for long times more than three hours.

Table 13: Distribution of parents' provision of advice and guidance to their children to keep their eyes and vision safe.

Do you provide advice and guidance to your children with normal or defective vision to keep their eyes and vision safe?	**Freq.**	**%**
Yes	1129	98.5
No	17	1.5
Total (missing 13)	1146	100
Do you ask your children to relax their vision for few seconds during reading and when doing school work or close work every 30-60minutes by looking to distant objects through window?		
Yes	889	77.7
No	193	16.9
I don't know	62	5.4
Total (missing 15)	**1144**	**100**
If the physician prescribed eyeglasses for your child, do you ask your child to put on the glasses most of the time except when in bed?		
Yes	982	85.7
No	84	7.3
I don't know	79	6.9
Total (missing 13)	**1146**	**100**
Do you ask your child not to use television or computer if available for long times more than three hours:		
Yes	1082	94.3
No	60	5.2
I don't know	6	0.5
Total (missing 11)	**1148**	**100**

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Table 14 showed that 91.9% of parents asked their children to commit to study and do homework during day time. 95.2% of parents asked their children to commit to avoid looking directly to source of light because it hurts vision. 88.4% of parents asked their children to commit to avoid strong light when reading, doing homework, and using television or computer if available because it hurts vision. 94.4% of parents asked their children to commit to avoid looking at sun eclipse when it occurs because it hurts vision and may cause blindness.

98.7% of parents asked their children to commit to avoid playing with sharp or penetrating objects such as pin and nail so as not to hurt own or other's eyes. 80.8% of parents asked their children to commit to use the building/house yard for playing, 17.5% of parents don't ask them to commit to do so and 1.5% of them don't know they should ask their children. 64.3% of parents asked their children to commit to

Table 14: Distribution of parents' responses about asking their children to keep safe their eyes and vision

Do you ask your children to commit to do the following:	**Freq.**	**%**
a. To study and do homework during day time		
Yes	1053	91.9
No	81	7.1
I don't know	12	1.0
Total (missing 13)	1146	100
b. Not to look directly to source of light because it hurts vision		
Yes	1093	95.2
No	40	3.5
I don't know	15	1.3
Total (missing 11)	1148	100
c. To avoid strong light when reading, doing homework, and using television or computer if available because it hurts vision		
Yes	1016	88.4
No	96	8.4
I don't know	37	3.2
Total (missing 10)	1149	100
d. Not to look at sun eclipse when it occurs because it hurts vision and may cause blindness		
Yes	1088	94.4
No	12	0.1
I don't know	52	4.5
Total (missing 7)	1152	100
e. Not to play with sharp or penetrating objects such as pin and nail so as not to hurt own or other's eyes.		
Yes	1134	98.7
No	11	1.0
I don't know	4	0.3
Total (missing 10)	1149	100
f. To use the building/house yard for playing		
Yes	928	80.8
No	203	17.5
I don't know	17	1.5
Total (missing 11)	1148	100
g To encourage the child with visual disability to play in the building/house yard wearing the eyeglasses		
Yes	739	64.3
No	313	27.2
I don't know	97	8.4
Total (missing 10)	1149	100

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encourage the child with visual disability to play in the building/house yard wearing the eyeglasses.

4.1.4 Environmental factors influencing vision capacity at home depending on parents' opinion about illumination in the child's study room:

The findings in Table 15 showed that 85% of those who filled in the questionnaire reported that natural illumination in the study room was adequate.

When asking about availability of windows in the studying room, 97.5% answered yes for the availability of a window or more in the studying room and 2.5% answered that there was no window. 33.5 %of students' families were using artificial lighting with natural illumination during day time and 66.5% of them don't use.

Table 15: Distribution of parents' opinion about environment at home:

Illumination in the child's study room:	**Freq.**	**%**
a. Is natural illumination in the study room adequate?		
Yes	972	85
No	122	10.7
I don't know	49	4.3
Total (missing 16)	1143	100
b. Is there a window in the study room		
Yes	1125	97.5
No	29	2.5
Total (missing 5)	1154	100
c. Is artificial light used with natural illumination during daytime?		
Yes	387	33.5
No	767	66.5
Total (missing 5)	1154	100

Table 16: Distribution of the mean, std. dev. and the range of number of windows and window surface area, room surface area, light power in Watt and Window surface area/ Room surface area ratio.

Range	**Mean**	**Std.Dev.**	**Minimum**	**Maximum**	**Range**	**Total**
Window number	1.5249	0.5819	1	5	4	1125
Window surface area	1.7298	.6174	0.5 m^2	6 m	5.5	1125
Room surface area	14.9228	3.7674	$6m^2$	$40m^2$	34	1153
Light power in Watt	77.0555	34.9136	40	200	160	1154
Window / Room surface area ratio:			**Freq.**	**%**		
<10%			161	14.3%		
=>10%			964	85.7%		
Total			1125	100%		

Table 16 showed that the minimum number of windows was one window and the maximum was 5 (range 4), the mean was 1.5249 and the standard deviation was 0.5819. The minimum for window surface area was 0.5 m^2 and the maximum was 6 m^2 (range 5.5 m^2), the mean was 1.7298 m^2 and the standard deviation was 0.6174. The mean of

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the room surface area was 14.9228m^2 (The minimum room surface area was 6 m^2 , the maximum was 40 m^2, and the range was 34 m^2). The mean of the power of the light used in the study room was found to be 77.0555 Watt (the minimum was 40 Watt, the maximum was 200 Watt, and the range was 160 Watt).

85.7% of the windows have surface area in the ratio of 10% and above in proportionate to the room surface area which is acceptable and 14.3% having a ratio of less than10% from the room surface area which is not acceptable according to School Health Directorate Specifications for building code and according to M.O.E standard specification for school buildings.

4.1.5 Studying times:

Results in Table 17 showed that 66.5% of students in 1st grade spend less than 2 hours in studying, 30.5% of them spend 2-3 hours in studying and 2.9% spend more than 3 hours in studying. Table 18 showed that 55.4% of the students in 1st grade study during daytime, 11.3% study after sunset, 33.3%study during daytime and after sunset. Also it showed the means of hours of study times; the mean hours for studying during day time was 2.0492 hours and a standard deviation of 0.7055 (range2.5, from 1 to 3.5 hours), the mean hours for studying after sunset was 1.6873 hours and a St. Dev. Of 0.6376 (range 3, from 1 to 4 hours), and the mean hours for studying during day time and after sunset was 2.4340 hours and a Std. Dev. of 0.5545 (range 2.5, from 1.5 to 4 hours).

Table 17: The distribution of students according to hours of studying

Studying hours:	Freq.	%
<2hours	767	66.5
2-3hours	352	30.5
>3hours	34	2.9
Total (missing 6)	1153	100

Table 18: The distribution of the mean, St. Deviation, minimum, maximum, and the range according to study times in hours.

Study times		Mean	Std. Dev.	Min.	Max.	Range	Total
	Freq. & %						
Day time	936 (55.4%)	2.0492	0.7055	1.00	3.5	2.5	639
After sunset	130 (11.3%)	1.6873	0.6376	1.00	4	3	130
Day time & Sunset	384 (33.3%)	2.4340	0.5545	1.5	4	2.5	384
Studying time		2.1366	.6928	1	4	3	
Total 1153(missing 6)	1153						

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4.1.6:The child and television

Results in Table 19 indicated that 96.6% of respondents have a T.V set and 3.1% of them don't have a T.V set. 47.5% of the students in 1st grade spend less than 2 hours watching T.V programs and spend 2-3 hours, 24.8% spend 2-3 hours and 27.8 spend more than 3 hours watching T.V programs. It was found also that 44.3% of students sit at a distance less than 2 meters far from the T.V set, 39.9% of them sit at a distance 2-3 meters far from the T.V set, and 15.8% sit at a distance more than 3 meters far from the T.V set to watch T.V programs.

Table 19: Distribution of students according to availability of T.V set, time spent watching T.V and how far in meters the child sits away from T.V

Is a T.V set available at home?	**Freq.**	**%**
Yes	1123	96.9
No	36	3.1
Total	1159	100
How many hours does your child spend watching T.V?		
<2	533	47.5
2-3hours	278	24.8
>3hours	312	27.8
Total (missing 36)	1123	100
How far in meters does your child sit away from T.V		
<2 meters	498	44.3
2-3 meters	448	39.9
>3meters	177	15.8
Total (missing 36)	1123	100

Table 20: Distribution of the mean, St. Deviation, and the range according of hours spent by the child watching T.V programs and how far in meters the child sit far away from the T.V set.

	Mean	Std. Dev.	Min.	Max.	Range	Total
Hours spent watching T.V	2.7803	1.3936	0.3	8	7.7	1123
Meters away from T.V	2.5889	.9819	0.5	7	6.5	1123

Results in Table 20 show that the mean of hours spent by the students watching T.V programs was 2.7803 hours and a standard deviation of 1.3936 (range from 0.3 to 8 hours). The mean of meters the students sit far from T.V set watching T.V programs was 2.5889 meters and a standard deviation of .9819 (range from 0.5 to 7).

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4.1.7 The child and the computer:

Results in Table 21 showed that 845 of them (73.3%) reported don't have a computer set and 308 of respondents (26.7%) have a computer set. 266 students are using computers; 48.1% of them use computer moderately , 29.2% use it little, 9.1% use the computer enormously and 13.6% do not use the computer. Results showed that 200 of students (75.2%) spend less than 2 hours using the computer and 59 students (22.2 %) spend 2-3 hours and 7 students (2.6%) spend more than 3 hours for using the computer.

Table 21: Distribution of students according to availability of a computer set, usage and hours spent using the computer.

Is a computer set available at home?	**Freq.**	**%**
Yes	308	26.7
No	845	73.3
Total (missing 6)	1153	100
How does your child use the computer?		
Enormously	28	9.1%
Moderately	148	48.1
Little	90	29.2
Does not use computer	42	13.6
Total	308	100
How many hours does your child spend using the computer?		
<2 hours	200	75.2
2-3hours,	59	22.2
>3	7	2.6
Total (missing 43)	266	100

Table 22: Distribution of the mean, std.dev. and the range of hours spent by the child using the computer.

Child and computer	**Mean**	**Std.Dev**	**Min**	**Max**	**Range**	**Total responses**
Hours spent by child playing computer	1.2229	.7873	0.3	5	4.7	266

Table 22 show the mean of hours spent by the student for using computer was 1.2229 hours and a std.Dev. of 0.7873 (range from 0.3 to 5 hours).

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4.1.8 The child and physical activity:

Results in Table 23 show that 84.2% of respondents reported that their children in 1st grade practice physical activity, about 13.3% of students in 1st grade don't practice physical activity, and 2.5% of the respondents don't know if their children in 1st grade practice physical activity or not. 54.3% of them play well, 44.9% play in acceptable way, 0.7% were afraid to play. When asking about history of falling or stumbling of their child while walking or playing, 18.9% of the respondents answered that their children in 1st grade had history of falling or stumbling while walking or playing. 2.2% of respondents answered yes for falling or stumbling of the child because of visual disability.

Table 23 :Distribution of students according to practicing physical activity

	freq	%
The child and physical activity:		
a. Does your child practice physical activity?		
-Yes:	**972**	**84.2**
-No:	**153**	**13.3**
-I don't know:	**29**	**2.5**
-Total(missing 5)	**1154**	**99.9**
b. How does the child play?		
well	525	54.3
Acceptable	434	44.9
Afraid	7	0.7
Total (missing 199)	966	100%
b. Has the child ever fallen or stumbled while walking or playing?		
-Yes	217	18.9
-No	878	76.3
-I don't know	55	4.8
Total (missing 9)	**1150**	**100**
b. Had the child ever fallen or stumbled because of visual disability?		
-Yes	25	2.2
-No	1085	94.5
-I don't know	38	3.3
Total (missing 11)	1148	100
c. Is there any fear of car accident for the child because of visual disability?		
-Yes	145	12.6
-No	947	82.4
-I don't know	57	5
Total (missing 10)	1149	100
d. Had the child ever been exposed to car accident because of visual disability?		
-Yes	12	1
-No	1125	97.9
-I don't know	12	1
Total (missing 10)	1149	100

When asking about fear of car accident for the child because of visual disability, 12.6% of the respondents answered there is fear of car accidents for the child because of visual disability. Only 1% mentioned exposure of their children in 1st grade to car accident because of visual disability, 1%answered they don't know, and 97.9% answered no history of exposure to car accident.

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4.1.9 Vision acuity testing for schoolchildren at school:

Results in Table (24) illustrate knowledge of parents about vision acuity testing for schoolchildren at school which was assessed by asking questions whether they know or don't know about visual acuity testing and referral procedures using Form F 80 to the ophthalmologist in comprehensive health centre or general hospital. 59.4% of parents know that visual acuity testing is done for all schoolchildren from the first to the last grade at school by the class tutor and 40.6% of them don't know. 57.8% of parents know that schoolchildren who have defective vision are referred using Form F 80 to the ophthalmologist in comprehensive health centre or general hospital to be examined and treated and 41.8%of them don't know. 70% of parents know that if ophthalmic examination results show that some schoolchildren need eyeglasses, eyeglasses will be prescribed by the ophthalmologist stating the power of the lenses in diopters to correct visual problem, and 30% of them don't know. 45.9% of parents know that the prescribed eyeglasses are

Table 24: Distribution of parents according to knowing of visual testing of students at school.

	Freq.	%
a. Do you know that visual acuity testing is done for all schoolchildren from the first to the last grade at school by the class tutor?		
Yes	684	59.4
No	468	40.6
Total (missing 7)	1152	100
b. Do you know that schoolchildren who have defective vision are referred using Form F 80 to the ophthalmologist in comprehensive health centre or general hospital to be examined and treated?		
Yes	665	57.8
No	485	41.8
Total (missing 9)	1150	100
c. If ophthalmic examination results show that some schoolchildren need eyeglasses , do you know that eyeglasses will be prescribed by the ophthalmologist stating the power of the lenses in diopters to correct visual problem?		
Yes	804	70
No	345	30
Total (missing 10)	1149	100
d. Do you know that the prescribed eyeglasses are dispensed free of charge from the ministry of health accredited optic centre?		
Yes	528	45.9
No	622	54.1
Total (missing 9)	1150	100
e. Was your child examined by class tutor at the beginning of the scholastic year?		
Yes	578	50.4
No	569	49.6
Total (missing 9)	1150	100
f. If yes, what was the result of vision acuity testing done by the class tutor?		
Normal vision	536	94
Defective vision	35	6
Total (missing 589)	571	100

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dispensed free of charge from the ministry of health accredited optic centre and 54.1% of them don't know.

50.4% of parents answered yes when were asked if their children in 1st grade had been examined by class tutor at the beginning of the scholastic year and 49.6% of them answered no, their children in 1st grade had not been examined by class tutor at the beginning of the scholastic year. 536 of 578 parents (94%)mentioned normal vision and 35 of 578 parents (6%) mentioned defective vision and need ophthalmic consultation as the result of vision acuity testing done by the class tutor.

Those parents who mentioned normal vision testing results or whose children in 1st grade had not been examined by class tutor at the beginning of the scholastic year were asked to stop filling in the questionnaire, but those parents whose children need ophthalmic consultation would continue filling the questionnaire.

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4.1.10 Referring the child to the ophthalmologist:

In the previous Table (24), 35 of 578 parents (6%) mentioned that their children in 1st grade have defective vision and need ophthalmic consultation as the result of vision acuity testing by the class tutor and were requested to continue filling the questionnaire to check their care for their children and compliance to the referral procedures. Results in Table 25 show that only 28 out of 35 respondents answered and about 16 of the parents (57.1%) mentioned they receive 3 carbonized copies of referral Form F 80 signed by the principal of the school bearing the official seal of the school and given to their child to go and see the ophthalmologist, and 12 of them mentioned they didn't receive any referral papers (42.9%). When asked them why

Table 25: Distribution of students' parents according to knowledge of referral procedures of students to the ophthalmologist

A: Referring the child to the ophthalmologist:	**Freq.**	**%**
a. Did you receive 3 carbonized copies of referral Form F 80 signed by the principal of the school bearing the official seal of the school and given to your child to go and see the ophthalmologist?		
Yes	16	57.1
No	12	42.9
Total (missing 1131)	28	100
B: If not, State the reasons why.		
a. The teacher did not write or forgot to write the referral Form F 80, but told the child the result of vision testing and directed her/ him to see an ophthalmologist		
Yes	2	22.2
No	7	77.8
Total (missing 1150)	9	100
b. The teacher wrote the referral Form F 80, but forgot to give it to the child		
Yes	0	0
No	9	100
Total (missing 1150)	9	100
c. The teacher wrote the referral Form F 80, and gave it to the child but the child lost it		
Yes	0	0
No	9	100
Total (missing 1150)	9	100
d. Others please specify.	0	0
C. Did you visit with your child the ophthalmologist in comprehensive health centre or general hospital taking with you 3 carbonized copies of referral Form		
Yes	15	42.9
No	20	57.1
Total (missing 1124	35	100
D: If no, did you visit an ophthalmologist in his private clinic?		
Yes	11	37.9
No	18	62.1
Total (missing 1130	29	100
E: What was the result of ophthalmic examination?		
Normal vision	9	42.9
The child needs eyeglasses	12	47.1
Total (missing 1138)	21	100
F: If your child's vision was defective and needed eyeglasses, were eyeglasses prescribed according to the ophthalmologist visual acuity testing?		
Yes	11	55
No	9	45
Total (missing 1139)	20	100

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they didn't receive referral papers, only 9 parents answered; 2 of them stated that the teacher did not write or forgot to write the referral Form F 80, but told the child the result of vision testing and directed her/ him to see an ophthalmologist and 7 parents stated that the teacher didn't write and didn't tell the child the result of the vision acuity testing. All the 9 parents answered no for the other listed reasons in question B:(b, c,& d) when asking about visiting the ophthalmologist, about 15 of the parents of the schoolchildren with defective vision answered they visited the ophthalmologist in the comprehensive health centre or general hospital taking with them 3 carbonized copies of referral Form for ophthalmic consultation, and 20 parents answered they didn't. When asking about visiting the ophthalmologist in the private sector. Only 11 of them had visited the ophthalmologist in the private sector and 18 parents didn't visit.

In brief, 15 parents had visited the ophthalmologist in the comprehensive health centre or general hospital, and 11 parents had visited the ophthalmologist in his private clinic and the result of ophthalmic examination was that 9 of the students in 1st grade had normal vision and 12 of them need eyeglasses. See (Table 25).

When asking about 1st grade schoolchildren with vision defective and needed eyeglasses if eyeglasses were prescribed to them according to the ophthalmologist visual acuity testing, (see Table 26), 11 of the schoolchildren answered they were prescribed eyeglasses and 9 of them were not. 4 parents, whose children in 1st grade were prescribed eyeglasses, reported to the ministry of health accredited optic centre to dispense eyeglasses free of charge and 14 parents didn't, and 3 of them hand over to the optometrist in M.O.H accredited optic centre a carbonized copy of referral Form F 80 signed by the principal of the school bearing the official seal of the school and the prescribed power of the lenses in diopters by the ophthalmologist and 6 didn't. 4 of the schoolchildren in first grade were being dispensed the prescribed eyeglasses free of

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charge from the ministry of health accredited optic centre and 5 were not. Only one schoolchild brought back a carbonized copy of the referral Form F 80 with the prescribed power of the lenses in diopters and the diagnosis written by the ophthalmologist to the principal of the school or class tutor and 4 didn't bring back.(Table 26).

Table 26: Distribution of students' parents according to knowledge of referral procedures of students to the M.O.H accredited optic centre

G: Did you report to the ministry of health accredited optic centre to dispense eyeglasses free of charge?	**Freq.**	**%**
Yes	4	22.2
No	14	77.8
Total (missing 1131)	18	100
H: Did you hand over to the optometrist in M.O.H accredited optic centre a carbonized copy of referral Form F 80 signed by the principal of the school bearing the official seal of the school and the prescribed power of the lenses in diopters by the phthalmologist		
Yes	3	33.3
No	6	66.7
Total (missing 1150)	9	100
I: Did the ministry of health accredited optic centre dispense the prescribed eyeglasses free of charge for your child?		
Yes	4	44.4
No	5	55.6
Total	9	100
J Did you bring back a carbonized copy of the referral Form F 80 with the prescribed power of the lenses in diopters and the diagnosis written by the ophthalmologist to the principal of the school or class tutor?		
Yes	1	20
No	4	80
Total	5	100

When parents were asked to state the reasons for not reporting to the optic centre they stated five reasons as shown in Table 27: one father (14.3%) mentioned that the ophthalmologist in the private sector prescribed eyeglasses to the child but, in his opinion, these would not be dispensed on his health insurance card. Another one (14.3%) mentioned that eyeglasses are not covered by health insurance, and one father (14.3%) mentioned prolonged waiting time, two fathers (28.6%) mentioned they don't know that the prescribed eyeglasses are dispensed free of charge if the child was referred using referral Form F 80 from the MOH accredited optic centre, and another two fathers (28.6%) mentioned that they purchased the eyeglass to the child before intering the school.

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Parents, who didn't visit with their children in 1st grade the ophthalmologist in comprehensive health centre or general hospital or in his private clinic and then eyeglasses were not prescribed to their children and they didn't report to the ministry of health accredited optic centre to dispense eyeglasses free of charge, were asked to state the reasons: two fathers (16.7%) mentioned they don't have a health insurance card, two fathers (16.7%) mentioned they can't afford to pay for transport charges to the comprehensive health centre or general hospital and back home, seven fathers (58.3%) mentioned they don't have time because of their work commitments, and one father (8.3%) mentioned he can't pay for physician in private or government health center or general hospital**.** (See Table 27).

Table 27: Distribution of students' parents according to reasons for not reporting to the ministry of health accredited optic centre to dispense eyeglasses free of charge

3.9.8.N: If you didn't report to the ministry of health accredited optic centre to dispense eyeglasses free of charge, state the reasons why,	**Freq.**	**%of responses**
* The ophthalmologist in the private sector prescribed eyeglasses to the child, but in my opinion, these eyeglasses would not be dispensed on my health insurance card.	**1**	14.3
* Eyeglasses are not covered by health insurance	**1**	14.3
* I don't know that the prescribed eyeglasses are dispensed free of charge if the child was referred using referral Form F 80 from the ministry of health accredited optic centre.	**2**	28.6
*Prolonged waiting time	**1**	14.3
*I purchased the eyeglass to my child before he inter the school	**2**	28.6
Total Responses	**7**	100
3.9.8.M: if you didn't visit with your child the ophthalmologist and then eyeglasses were not prescribed to your child and you didn't report to the ministry of health accredited optic centre to dispense eyeglasses free of charge, state the reasons why**:**		
* I don't have a health insurance card.	2	16.7
* I can't afford to pay for transport	2	16.7
* I don't have time because of my work	7	58.3
* can't pay for physician in private or government health center or general hospital	1	8.3
Total Responses	**12**	**100**

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4.1.11 Vision testing results:

I. Vision testing results as done by class tutor at the time of conducting the study:

when asking the tutors of 1st grade classes if any of their students wears eyeglasses or suffers from visual problems through daily observation for reading, writing, doing homework and examination marks, results in Table 28 show that 9.7% of the schoolchildren suffered from visual problems and 90.3% did not suffer and only 1.2% wore eyeglasses. The results of vision acuity testing done by the tutors were found to be as shown in(Annex 4, Table 1) arranged into better eye and other eye whether right or left, the number of students with vision acuity below the cut off point was 89 students rating about 7.7% of the sample size including schoolchildren wearing eyeglasses. 14 students were found to be wearing eyeglasses (1.2% of the sample of students), and the results of tutor's vision acuity testing for them without and with eyeglasses were shown in (Annex 4, Table 2) in frequency and percentage.

Table 28: The distribution of students according to suffering from visual problem

Does schoolchild suffer from visual problem?	Freq.	%
Yes	113	9.7
No	1046	90.3
Total	1159	100
was schoolchild wearing eyeglasses?		
Yes	14	1.2
No	1145	98.8
Total	1159	100

II. Vision page review results:

On reviewing the vision page of the student's school medical file to check if vision acuity testing was done at the beginning of the scholastic year, results show that (92.7%) of students were tested for vision acuity and 7.3% of students were not tested at the beginning of the year as illustrated in (Table 3, Annex 4) and were found absent at the time of vision testing in the beginning of the year and all of them were not tested again when they came back to school. When the tutors were asked about the reasons for

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not testing the vision acuity of the students who were absent, 54.1% of them reported they were new and recently get the job, 18.8% answered that the student was transferred from another school where he/she should be tested at the previous school, 3.5% of tutors reported they forgot, 3.5% reported the student was abroad at the beginning of the year, two female tutors (2.4%) were at motherhood vacation and 1.2% were not well trained as shown in Table 29. Results of reviewing the vision page of the students' school medical files were shown in (Annex 4, Table 3) and indicated that 1032 out of 1159 students (89%) had normal vision acuity measurements and 42 students (3.6%) had visual problems and 85 students (7.3%) were absent.

Table 29: Distribution of students according to results of vision page review of school student's medical file

Did the class tutor carry out vision testing at the beginning of the scholastic year?	**Freq.**	**%**
Yes	1074	92.7
No	85	7.3
Total	1159	100
If no; was the schoolchild absent at the time of the testing?		
Yes	85	100
No	0	
Total (1047 missing)	85	100
If yes (child was absent); was he/she tested when coming back?		
Yes	0	
No	85	100
Total (1047 missing)	85	100
5.5 If no; the tutor did not carry out vision testing for the child and the child was not absent.		
- Student absence when teacher take vision test	14	16.5
- New Student from other school	16	18.8
-Student outside of Jordan when vision test took place	3	3.5
-New teacher	46	54.1
-Teacher was not well trained	1	1.2
-Teacher at motherhood vacation	2	2.4
-Teacher forget to test	3	3.5

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III. The results of vision acuity testing done by the researcher.

The results of vision acuity testing done by the researcher were found to be as shown in Table 30 categorized into better eye and other eye whether right or left and distributed in frequency and percentage. The total number of 1st grade schoolchildren with normal vision was 900 students (77.7% of the sample of students) distributed as follows: 46.2% with 6/6 for both eyes, 16.8% with 6/6 in one eye and 6/9 for the other eye and 14.7% with 6/9 for both eyes. About 259 students were at the cut off point and below in one or both eyes including 14 students wearing eyeglasses (constituting 6.9% of the cases) and the prevalence of visual problems was 22.3 %.

Table 30: The distribution of students according to vision acuity testing results as done by the researcher

Better eye	Other eye	Freq.	%
6/6	6/6	535	46.2
6/6	6/9	195	16.8
6/9	6/9	170	14.7
Total of students with normal vision		900	77.7%
6/6	6/12	23	1.9
6/6	6/18	3	0.3
6/6	6/24	0	0
6/6	6/36	4	0.4
6/6	6/60	1	0.1
6/9	6/12	76	6.6
6/9	6/18	15	1.3
6/9	6/24	2	0.2
6/9	6/36	2	0.2
6/9	6/60	0	0-
6/12	6/12	49	4.2
6/12	6/18	26	2.3
6/12	6/24	4	0.3
6/12	6/36	2	0.2
6/12	6/60	0	0-
6/18	6/18	21	1.8
6/18	6/24	11	0.9
6/18	6/36	3	0.3
6/18	6/60	1	0.1
6/24	6/24	8	0.7
6/24	6/36	1	0.1
6/24	6/60	0	0
6/36	6/36	5	0.4
6/36	6/60	1	0.1
6/60	6/60	1	0.1
Total of students with visual problems		259	22.3%
Grand Total		1159	100.5

About 6.6% of the detected 259 students had vision acuity of 6/9 in one eye and 6/12 in the other eye, 4.2% had vision acuity of 6/12 in one eye and 6/12 in the other eye, 2.3% had vision acuity of 6/12 in one eye and 6/18 in the other eye 1.9% had vision acuity of 6/6 in one eye and 6/12 in the other eye, 1.8% had vision acuity of 6/18 in one eye and 6/18 in the other eye and one student had 6/60 for both eyes and was diagnosed as congenital juvenile glaucoma by ophthalmologist in the Royal Medical Services, and

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two students had squint: one with normal vision and the other one with defective vision, and only one student had nystagmus.

Vision acuity testing results for students wearing eyeglasses, without & with eyeglasses as done by the researcher, were shown in Table 31 in frequency and percentage.

Table 31: Distribution of students who wear eyeglasses according to vision acuity testing results as done by the researcher

1. Without wearing eyeglasses.				2. With wearing eyeglasses.			
Better eye	**Other eye**	**Freq.**	**%**	**Better eye**	**Other eye**	**Freq.**	**%**
6/6	**6/12**	**1**	**7.1**	**6/6**	**6/9**	**1**	**7.1**
6/6	**6/36**	**1**	**7.1**	**6/6**	**6/12**	**1**	**7.1**
				6/6	**6/18**	**2**	**14.2**
				6/6	**6/24**	**1**	**7.1**
6/9	**6/12**	**1**	**7.1**	**6/9**	**6/9**	**1**	**7.1**
				6/9	**6/12**	**1**	
6/12	**6/18**	**3**	**21.3**	**6/12**	**6/12**	**3**	**21.3**
				6/12	**6/18**	**1**	**7.1**
6/18	**6/18**	**2**	**14.2**	**6/18**	**6/18**	**1**	**7.1**
6/18	**6/36**	**1**	**7.1**	**6/18**	**6/24**	**1**	
6/24	**6/24**	**1**	**21.4**	**6/36**	**6/36**	**1**	**7.1**
6/24	**6/36**	**1**	**7.1**				
6/60	**6/60**	**1**	**7.1**				
Total		**14**	**99.4%**	**Total**		**14**	**99.4**

4.2 Relationship between visual problems with some variables:

4.2.1 Relationship between visual problems and sex:

Results indicate that 259 of 1159 students had defective vision. The males constitute 42.5% of the total number of students and 21.1% of male students have defective vision and 23.3% of female students have defective vision. Table 32 shows that the females had a higher prevalence than males and this difference was found to be statistically not significant (X^2 =.774, P = .379).

Table 32: Distribution of prevalence of visual problems among students according to sex

Gender	Freq.	Defective vision		P value
		No.	Prevalence%	
Male	493	104	21.1	.379
Female	666	155	23.3	
Total	1159	259	22.3%	

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4.2.2 Relationship between visual problems and wearing eye glasses of mother , father and brothers and sisters:

Table 33: Distribution of prevalence of visual problems among students according to wearing eyeglasses by mother, father, and any brother or sister

Wearing eyeglasses by mother	Freq.	Defective vision		P value
		Freq.	Prevalence %	
Yes	141	37	26.2	.259
No	1009	222	22	
Total	1150	259	22.5	
Wearing eyeglasses by father	Freq.	Defective vision		
		Freq.	Prevalence %	
Yes	203	63	31	.001
No	952	194	20.4	
Total	1155	257	22.3	
Wearing eyeglasses by brother/ sister	Freq.	Defective vision		
		Freq.	Prevalence %	
Yes	187	48	25.7	.231
No	966	209	21.6	
Total	1153	257	22.3	

In case that mother wears eyeglasses: Table 33 shows that 26.2% of students whose mothers wear eyeglasses and 22%% of students whose mothers do not wear eyeglasses have defective vision. The relationship between mothers' wearing eyeglasses and the prevalence of visual problems was statistically not significant. ($X^2 = 1.274$, P = .259).

In case that father wears eyeglasses, Table 33 shows that 31% of students whose fathers wear eyeglasses and 20.4% of students whose fathers do not wear eyeglasses have defective vision. The relationship between fathers' wearing eyeglasses and the prevalence of visual problems was found statistically significant. ($X^2 = 10.983$, P= .001).

In case that any of brothers & sisters wear eyeglasses, Table 33 shows that 25.7% of students whose brother and / or sister wear eyeglasses and 21.6% of students whose brother and / or sister do not wear eyeglasses have defective vision. The relationship between brother/sister's wearing eyeglasses and visual problems was found statistically not significant.($X^2 = 1.471$, P= .231**)**

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4.2.3 Relationship between visual problems and kinship marriage between mother , father and whether 1st or 2nd degree:

Table 34 shows that 20.9% of students whose parents are relatives and 23.3% of students whose parents are not relatives have defectiuve vision.Two respondents (0.2%) do not know if parents are relatives or not. The relationship between marriage of relatives and visual problems was found statistically not significant. X^2= 1.484, P = .476

Results in Table 34 show that 16.3% of students whose parents are first degree relatives from father's side and 25% of students whose parents are first degree relatives from mother side have defective vision. The relationship between marriage of first degree relatives and visual problems was found statistically not significant. X^2= 2.259, P = .133

Table 34: Distribution of prevalence of visual problems among students according to kinship between mother and father , first and second degree kinship

Parents are relatives	Freq.	Defective vision		P value
		Freq.	Prevalence %	
Yes	421	88	20.9	.476
No	733	171	23.3	
I don't know	2			
Total	1156	259	22.3	
First degree relatives:	Freq.	Defective vision		
		Freq.	Prevalence %	
Father side	203	33	16.3	.133
Mother side	56	14	25	
Total	259	47	18.1	
Second degree relatives	Freq.	Defective vision		
		Freq.	Prevalence %	
Father side	86	19	22.1	.703
Mother side	73	18	24.7	
Total	159	37	23.3	

Table 34 also illusatrates that 22.1% of students whose parents are second degree relatives from father's side and 24.7% of students whose parents are relatives from mother side have defective vision.The relationship between marriage of second degree relatives and visual problems was found statistically not significant. X^2= .145, P =.703

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4.2.4. Relationship between visual problems, illumination and Window/Room surface area ratio.

Table 35: Distribution of prevalence of visual problems among students according to ratio of window/room surface area and using of artificial light with natural light

Window/room surface area ratio	Freq.	Defective vision		P value
		Freq.	%	
Accepted	964	213	22.1	.802
Not accepted	161	37	23	
Total	1125	250	22.2	
Artificial light is used with natural light	Freq.	Defective vision		P value
		Freq.	%	
Yes	287	98	34.1	.096
No	767	161	21	
Total	1154	259	22.3	
Power of the lamp in Watt	Freq.	Defective vision		P value
		Freq.	%	
<= 100 Watt	1072	236	22	.207
>100 Watt	82	23	28	
Total	1154	259	22.3	

The minimum requirements of the window surface area is 10% of room surface area, Table 35 shows that 22.1% of students who have acceptable widow/room surface area ratio and 23% of students who have not acceptable widow/room surface area ratio have defective vision.The relationship between visual problems and window/room surface area ratio was statistically not significant.(X^2= .063, P= .802).

It was found that 34.1% of the students who use artificial illumination with natural light in the studying room and 21% of those who do not use artificial illumination with natural light in the studying room have defective vision. The relationship between visual problems and using artificial illumination with natural light in the studying room was found statistically not significant, (X^2 = 2.773, P = .096).

92.9% of students' families use 100 Watt light power or less, and 7.1% use more than 100 Watt light power. The relationship between visual problems and lamp light power was found statistically not significant. (X^2 = 1.593, P = .207).

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4.2.5. Relationship between visual problems and studying hours.

Studying including reading, writing and doing homework was assessed through asking questions related to studying hours. Results in Table 36 show that 23.2% of students who study less than 2 hours,19.3% of students who study 2-3 hours, and 35.3% of the students who study more than 3 hours daily have defective vision. The relationship between visual problems and daily studying hours was found statistically not significant,(X^2= 5.467, P= .065).

Table 36: Distribution of the prevalence of visual problems among students according to daily studying hours

Daily studying hours	Freq.	Defective vision		P value
		Freq.	%	
<2 hours	767	178	23.2	.065
2-3 hours	352	68	19.3	
>3 hours	34	12	35.3	
Total	1125	258	22.9	

4.2.6. Relationship between and time spent & the distance far when watching T.V:

Time spent by the students watching T.V programs and the distance in meters the student used to sit far from T.V were assessed through asking questions related to daily spent hours watching T.V. and meters far from T.V.

Results in Table 37 showed that 22.5% of students who spend less than 2 hours, 24.8% of the students who spend 2-3 hours, and 19.9% of students who spend 2-3 hours watching T.V have defective vision.

Table 37: Distribution of the prevalence of visual problems among students according to daily hours spent and distance far from T.V in meters when watching T.V program

hours spent watching T.V programs	Freq%	Defective vision		P value
		Freq,	%	
<2 hours	533	120	22.5	.352
2-3 hours	278	69	24.8	
>3 hours	312	62	19.9	
Total	1123	251	22.3	
Distance far from T.V when watching TV	Freq%	Defective vision		P value
		Freq,	Freq%	
<2 meters	498	121	24.3	.338
2-3 meters	448	91	20.3	
>3 meters	177	39	22	
Total	1123	251	22.3	

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The relationship between visual problems and the time spent watching T.V programs was found statistically not significant, (X^2 = 2.090, P=.352).

Results also indicated that 24.3% of students who sit at a distance less than 2 meters watching T.V, 20.3% of students who sit at a distance 2-3 meters, and 22% of students who sit at a distance more than 3 meters have defective vision. The relationship between visual problems and the distance at which children sit for watching T.V programs was found statistically not significant (X^2 =2.170, P= .337).

4.2.7. Relationship between visual problems and time spent using computer:

Time spent by the students using computer programs and how they use computer were assessed through asking questions related to daily hours spent using computer. Results in (Table 38) indicate that 18.9% of students who spend less than 2 hours using computer, 23.3% of students who spend 2-3 hours using computer, and 14.3% of students who spend above 3 hours daily using computer have defective vision.

Table 38: Distribution of the prevalence of visual problems among students according to daily hours spent playing & using the computer

hours spent using the computer	Freq%	Defective vision		P value
		Freq,	%	
<2 hours	175	33	18.9	.42
2-3 hours	90	21	23.3	
>3 hours	43	6	14.3	
Total	308	60	19.5	

The relationship between visual problems and time spent by the students using computer programs was found statistically not significant, (X^2 =1.733, P =.42)

4.2.8 :The Relationship between visual problems and the means of studying hours, time spent watching T.V programs and the distance far from T.V set in meters, time spent using computer, and the power of the lamp in Watt.

The Relationships between visual problems and power of the lamp in Watt used in the studying room, the time spent in studying, using computer, and watching T.V programs in hours and the distance far from T.V set in meters were studied using independent

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samples T test in case of equality of means and equal variances assumed between students who have defective and those who have normal vision. Results in Table 39 indicated there is statistically significant relationship only with the power of the lamp used in the studying room, (T test = 2.09, P=.037).

Table 39: Distribution of the means of studying hours, time spent watching T.V programs and the distance far from T.V set in meters, time spent using computer, and power of the lamp in Watt.

Item	Prevelance of visual ptoblems	Mean ± S.D	S.E mean	T-test	df.	P-Value
Studying hours	Defective N=258 Normal N=895	2.1136 ± .7203 2.1432 ±.6849	4.484E-02 2.289E-02	-.592	1151	.545
Hours watching T.V	Defective N=251 Normal N=872	2.7271 ± 1.436 2.7956 ± 1.3816	9.064E-02 4.679 E-02	-.687	1121	.493
Meters far from T.V set	Defective N=251 Normal N=872	2.5371±1.1238 2.6053 ±.9371	7.064 E-02 3.173 E-02	-1.044	1121	.297
Hours playing computer	Defective N=55 Normal N=211	1.200 ±.718 1.229 ±.8060	9.675E-02 5.549E-02	-.242	264	.809
Power of the room lamp in Watt	Defective N=259 Normal N=895	81.0425, 36.079 75.9017, 34.3733	2.2685 1.1490	2.09	1152	.037

4.3 Comparison between the researcher and the tutor in vision acuity testing:

Comparison between the results of vision acuity testing that were obtained by the researcher and those obtained by the class tutors for the right and left eyes was done by using Kappa test as a measure of agreement. A value of 1 indicates perfect agreement. Avalue of 0 indicates that agreement is no better than chance. Kappa is used for tables, in which both are using the same variables category values and both variables have the same number of categories, where a weight variable (count) to specify the number of cases for each cell in the 7(researcher's description) X 7 (tutors' descriptions) contingency table.(Annex 5).

The values are shown in Table 40 for the right eye and in Table 42 for the left eye. Kappa test value was.131 for the right eye(asymp.Std. Error = .020, P =.000) which is very poor agreement but the difference between both is statistically significant.

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Kappa test value was.129 for the left eye (asymp.Std. Error= .022, P =.000) which is very poor agreement value but the difference between both is statistically significant(asymp.Std. Error= .022, P =.000).

Since it is not fair to compare between the researcher and the class tutors using Kappa alone, then Youdin-J statistics is the appropriate measure in this regard where the researcher is considered the gold standard to which the tutors results are compared. J statistics = sensitivity + specifity-1, in 2 X 2 table, J = a/ a+c + d/ b+d -1.

J statistics for the right eye was 21.7%, and for the left eye was 29.5% indicating lack of reliability and validity of tutor vision acuity testing. J= 937 / 961+ 48 / 189 - 1= .975+.242 -1 = 1.217-1= 21.7% for the right eye.(Table 41)

J= .976 + .319 - 1 = 1.295 -1= .295 = 29.5% for the left eye.(Table 43)

Table 40: Distribution of researcher's and tutors' vision acuity testing results for the right eye / Kappa

			vision acuity testing results as done by the class tutor right eye							
			6/6	6/9	6/12	6/18	6/24	6/36	6/60	Total
Vision acuity testing results as done by the researcher for the right eye	6/6	Count	558	70	9	0	0	0	1	638
	6/9	Count	246	63	9	3	2	0	0	323
	6/12	Count	72	27	11	2	0	0	0	112
	6/18	Count	30	7	11	3	3	1	0	55
	6/24	Count	6	3	4	1	1	0	0	15
	6/36	Count	2	3	6	1	1	0	1	14
	6/60	Count	0	0	1	0	1	0	0	2
Total		Count	914	173	51	10	8	1	2	1159

Table 41: Comparison between researcher's and tutors' vision acuity testing results for the right eye / J statistic table

		Researcher vision acuity testing results / right eye	
		Normal	Abnormal
Tutors vision acuity testing results / the right eye	Normal	937	150
	Abnormal	24	48
Total		961	198

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Table 42: Distribution of researcher's and tutors' vision acuity testing results for the left eye / Kappa										
			vision acuity testing results as done by the class tutors left eye							
			6/6	6/9	6/12	6/18	6/24	6/36	6/60	Total
Vision acuity testing results as done by the researcher for the left eye	6/6	Count	560	90	8	0	0	0	0	658
	6/9	Count	234	58	11	2	2	0	0	307
	6/12	Count	77	25	13	1	1	0	0	117
	6/18	Count	23	9	5	7	1	1	0	46
	6/24	Count	5	4	7	1	2	0	0	19
	6/36	Count	0	3	1	1	1	2	1	9
	6/60	Count	0	0	0	1	1	1	0	3
Total		Count	899	189	45	13	8	4	1	1159

Table 43 :Comparison between researcher's and tutors' vision acuity testing results for the left eye / J statistic table			
		Researcher vision acuity testing results/right eye	
		Normal	Abnormal
Tutors vision acuity testing results / the left eye	Normal	942	147
	Abnormal	23	47
	Total	965	194

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5. Discussion

In this cross sectional study, first grade students in government schools in Greater Amman was the target population and the results, conclusions, and recommendations are applied only to Greater Amman.

It is worth mentioning that visual acuity screening is performed annually once at the beginning of scholastic year for all school children of all grades in all educational sector schools: government, private, UNRWA, and military schools to identify schoolchildren who have visual problems and need referral to ophthalmologist for correction. In government schools, vision screening is done by trained school teachers, while in private schools vision screening is done by the assigned physician.

Studies about visual problems among schoolchildren are rare in the Developing and in the Arab world and most of the availables studies were conducted among students above the age of first grade. In Jordan, no previous studies about visual problems among first grade schoolchildren are available. However, there are few unpublished studies conducted in Deir Abi S'ied / Irbed, Madaba, Amman and Karak about prevalence of myopia and uncorrected myopia among sixth and seventh grade schoolchildren.

The main aim of this study is to find out the prevalence of visual problems among the target population, to investigate the relationship between visual problems and some variables. Also to estimate the level of parents' knowledge about visual problems, imprtance of vision check up, follow up, and referral procedures, and to compare between the results of vision acuity testing that were obtained by the researcher and that obtained by the class tutor for both eyes to measure the agreement between both.

Prevalence of visual problems:

The prevalence of visual problems among first grade students in government schools in Greater Amman was 22.3% which is consistent with the results of screening

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of 48,075 seven years old children by the School Health Services in Singapore in 1996 (24.5%). This finding was higher than the finding of the study of Prevalence and Causes of Visual Acuity Defect in Male Schoolchildren in Al- Khobar area / Saudi Arabia where the prevalence was 4.4% for male children in first grade.

Sex:

The prevalence among females was 23.3% which is higher than that among males (21.1%).This difference was statistically not significant, (P= .379). There is no specific reason to explain this difference in prevalence, this may be due to temporal differences in development between males and females. This finding was consistent with the results of the Multinational Survey of Refractive Errors in children from La Florida, Chile (Maul et al., 2000) and from Mechi Zone, Nepal (Pokharel et al., 2000) where the prevelance among females was higher than males and was statistically not significant, and consistent with the results from Shunyi District, China. (Zhao et al., 2000). Nation wide the finding was consistent with the results of the study of myopia among schoolschildren in Deir Abi Saied (Haddad, 1998) and the results of the study of myopia among schoolschildren in Madaba (Masalha, 2001).

Family history of wearing eyeglasses by any of family members:

Regarding family history of wearing eyeglasses results indicated that 17.6% of students have fathers who wear eyeglasses, 12.3% of students have mothers who wear eyeglasses, and 16.2% of students have brothers/sisters who wear eyeglasses. The relationship was significant between visual problems and father's wearing eyeglasses (P= .001) only, and not significant between the prevelance and mother's (P= .379) and brothers'/sisters' wearing eyeglasses (P= .225). The results are consistent with findings in the study of myopia among schoolschildren in Madaba (Masalha, 2001) but not consistent with the study of the prevelence and risk indicators of myopia among

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schoolchildren in Amman 2004 (Izz Eddin et al., 2004). Other studies have indicated that there is a familial component to visual problems.

Consanguinity of couples:

For consanguinity of couples, results indicated that 36.4% of students have parents who are relatives. No significant relationship was found between visual problems and the degree of kinship of couples; for first degree (P=.133) and for second degree (P= .703). This finding was consistent with the result of the study of Prevalence and Causes of Visual Acuity Defect in Male Schoolchildren in Al- Khobar area / Saudi Arabia where the children of consanguineous parents were found to have better visual acuity than thos of non consanguineous parents (Abu- Shaqara et al., 1991) and was consistent with the results of the study of myopia among schoolschildren in Deir Abi Saied (Haddad, 1998) and the results of the study of myopia among schoolschildren in Madaba (Masalha, 2001).

However, there is a dearth of information in the literature on the effect of consanguinity on visual defects. Nevertheless, the effect of heredity on development of refractory error are well recognized.

Parents' knowledge about visual problems, attitudes , and practices:

Regarding parents' knowledge, attitudes , and practices on visual problems no data was available or could be found in Jordan, so this study will form baseline data for comparative purposes in the future. Regarding the causes and symptoms of visual problems, 29.8% of students' parents mentioned all of the listed causes in the questionnaire, 21%mentioned Diabetis mellitus hypertension and diseases of the retina, 16.9% mentioned genetic causes, 14.4% mentioned malnutrition, 8.5% mentioned environmental causes, 8.2% mentioned direct eye trauma and the rest mentioned other causes. Regarding the symptoms of visual problems, 19.4% of parents mentioned all of

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the listed symptoms, 13.4% mentioned eye fatigue when at close work or reading, and only 12.7% mentioned headache although headache irrespective of its cause is commonly attributed to refractive errors. Results indicate lack of parents' knowledge about causes and symptoms of visual problems.

About importance of visual acuity testing, 92.2% of the parents know about imprtance of annual vision acuity testing for their children, 2.4% believe it is not necessary to test student's vision acuity annually and 5.4% reported they don't know. 92.4% of the parents know about importance of preschool vision testing for students in first grade for early detection and correction of visual disabilities and 92.7% of the parents knew about necessity of visiting an ophthalmologist to identify problems of vision suffered while 5.6% of parents would visit other than the ophthalmologist to identify problems of vision suffered; 37.9% of them would visit the optometrist, 31.8% would visit the nurse in the health center, 28.8% would visit physician, and 1.5% would visit others and define school health physician.

Results about parents' knowledge about treatment and correction of visual problems showed that 90.4% of them know that visual problems can be treated and corrected, but when asking them about the given choices of treatment and correction results indicated that 86.7%of the responses mentioned the choice of nutrition and maintaining good diet especially micronutrients, meat, milk and dairy products, carrots, tomato, cucumber, paprika and parsley, 79.5% mentioned changing lenses of eyeglasses on regular vision testing, 70.2% mentioned using suitable eyeglasses only, and 60.5% mentioned surgery and then using suitable eyeglasse. Although nutrition and maintaining good balanced diet especially micronutrients is important for health promotion and vision protection, yet visual problems are mostly corrected by using suitable eyeglasse and in some cases surgery may be needed .

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Regarding attitudes of parents about consequences of visual disabilities if not treated, results showed that 59.6% of parents strongly agree and 33.8% of them agree for the consequence of reduced performance at school and 36.7% of parents strongly agree, 40.5% agree for the consequence of loss of employment opportunities. For those who disagree, this might be due to the fact that many students have visual problems but they work hard to get high grades in the examinations and that many employees having eyeglasses are in good jobs.

For the consequence of increased chance of child's exposure to falling and stumbling, 45% of parents strongly agree, 45.9% agree. For the consequence of fear of falling and stumbling may lead the child to avoids participation in playing with peers at school or at home, 34.5% of parents strongly agree, 41.9% agree. For the consequence of the child is psychologically affected, becomes isolated, and doesn't share peers with activities, 37.3% of parents strongly agree, 37.3% agree.

For the provision of advice and guidance by parents to their children to keep safe their eyes and vision (practices), most father reported they give advice to their children and to commit to do healthy practices to keep safe their eyes and vision.

Environment and vision:

Regarding home environmental factors influencing vision capacity such as illumination, availability of at least a window in the room, surface area of the window and the room, and power of the light used in the room, no data also was available or could be found in Jordan, and so this study is the first to discuss this issue and will form the baseline for comparative purposes in the future. Depending on respondent opinion, 85% of parents believe that natural illumination in the studying room was adequate**,** and 97.5%of students' parents reported the availability of a window in the studying room to allow natural light for natural illumination, and 33.5 %of students' families use artificial

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illumination with natural light during day time. The relationship between visual problems and window/room surface area ratio was statistically not significant,(P= .802), and with using artificial lighting with natural illumination during day time (P= .096) as well. The relationship between visual problems and power of the lamp used in the studying room was not significant when using Chi-Square (P=.207), but the relationship between the prevalence of visual problems and the mean of power of the light used in the studying room is significant when using independent samples T test in case of equality of means and equal variances assumed between students who have defective and those who have normal vision (P= .037). Environmrntal factors affecting vision should be studied in depth to be hightlighted.

The time spent in studying, using computer, and watching T.V programs in hours and the distance at which the students sit to watch T.V programs :

The effects of studying times (including reading, writing and doing homework), times spent using the computer if available,times spent watching T.V programs in hours and the distance at which the students sit to watch T.V programs were also assessed. Children's eyes are exposed to and are adapting to all these visually stressfull environmental factors. Study results failed to show any significant relationship between visual problems and these variables. The relationship between visual problems and daily studying hours was found statistically not significant (P= .065).

The relationship between visual problems and time spent in hours watching T.V was found statistically not significant (P= .352).

The relationship between visual problems and the distance far when watching T.V was found statistically not significant, (,P =.338).

The relationship between visual problems and time spent by the students using computer programs was found to be statistically not significant, (, P =.42).

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physical activity:

Results indicate that 84.1% of students practice physical activity**,** most of them play well and in acceptable way, and few of them are afraid to play. 18.9% of the students had history of falling or stumbling while walking or playing, 2.2% of students had previous history for falling or stumbling because of visual disability. 12.6% of the respondents are afraid of car accident for the child because of visual disability. Only 1% mentioned exposure of their children in 1st grade to car accident because of visual disability.

It is important to encourage children to be physically active so as to reduce environmental visual stress due to extended near work tasks, reading and writing and to provide clear comfortable vision at distance when stretching and moving the eyes and looking at far objects.

Vision acuity testing for schoolchildren at school:

Regarding evaluation of vision acuity testing program at school and assessment of parents' Knowledge about vision acuity testing for schoolchildren at school and referral procedures using Form F 80 to the ophthalmologist in comprehensive health centre or general hospital , no data also was available or could be found in Jordan, and so this study will form the base line data provided for comparative purposes in the future. Results show that 59.4% of parents know that visual acuity testing is done for all schoolchildren from the first to the last grade at school by the class tutors. 57.8% of parents know that schoolchildren who have defective vision are referred using Form F 80 to the ophthalmologist in comprehensive health centre or general hospital to be examined and treated. 70% of parents know that eyeglasses will be prescribed to those who need by the ophthalmologist stating the power of the lenses in diopters to correct visual problem. 45.9% of parents know that the prescribed eyeglasses are dispensed free

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of charge from the ministry of health accredited optic centre. 50.4% of parents reported that their children in first grade had been examined by class tutor at the beginning of the scholastic year and only 6% of parents mentioned their children had defective vision and need ophthalmic consultation as the result of vision acuity testing done by the class tutor and continued filling the questionnaire.

To check parent's care for their children and compliance to the referral procedures, results indicated poor referral of the students. 16 of the 34 (57.1%) parents mentioned they receive 3 carbonized copies of referral Form F 80 signed by the principal of the school bearing the official seal of the school and given to their child to go and see the ophthalmologist, and 12 of them mentioned they didn't receive any referral papers (42.9%). 2 of the 12 parents stated that the teacher did not write or forgot to write the referral Form F 80 but told the child the result of vision testing and directed her/ him to see an ophthalmologist and 7 parents stated that the teacher didn't write and didn't tell the child the result of the vision acuity testing. This indicate lack of communication between students' families and tutors at school. 15 of the 16 parents of the schoolchildren with defective vision had visited the ophthalmologist in the comprehensive health centre or general hospital taking with them 3 carbonized copies of referral Form for ophthalmic consultation and only 11 parents had visited the ophthalmologist in the private sector.The result of ophthalmic examination was that 9 of the students in 1st grade had normal vision and 12 of them need eyeglasses.

Results also show that only 4 parents of students in 1st grade reported to the ministry of health accredited optic centre to dispense eyeglasses free of charge, and 3 of them hand over to the optometrist in M.O.H accredited optic centre a carbonized copy of referral Form F 80 signed by the principal of the school bearing the official seal of the school and the prescribed power of the lenses in diopters by the ophthalmologist

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indicating poor compliance to the referral procedures. 4 of the students in first grade were being dispensed the prescribed eyeglasses free of charge from the ministry of health accredited optic centre. Only one schoolchild brought back a carbonized copy of the referral Form F 80 with the prescribed power of the lenses in diopters and the diagnosis written by the ophthalmologist to the principal of the school or class tutor and 4 didn't bring back indicating poor feed back to the school.

These findings indicate low knowledge level of parents about the vision testing program at school, follow up of their children, the dispensing of eyeglasses from the M.O.H accredited optic centre free of charge, the referral procedures, the feed back to school administration, and inadequate eye health services offered to the screened children which is consistent with the finding of the prevalence and causes of visual acuity defect in male students in Al-Khobar area. (Abu- Shaqara et al., 1991).

Vision page review:

Results show that 54% of tutors were new and recently get the job, 3.5% forget to test the absent students, 3.5% of students were abroad, and 1.2% of tutors were not trained. Results show that newly assigned tutors were not exposed to any training indicating lack of supervisory visits of schools.

Vision acuity testing results as obtained by the tutors and researcher:

Vision acuity testing results of the students as done by the class tutor indicate that 7.7% of students have defective vision at the time of conducting the study. Reviewing vision page of students' school medical files, 3.9% of students are found with defective vision at the beginning of the scholastic year, the differance in prevalence may be due to that the tutor was informed about the comparison between the results obtained by the tutor at the beginning of the scholastic year and at the time of conducting the study.

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Comparison was done between the results of vision acuity testing for both eyes as done by the researcher and as done by the tutors using Kappa test and Youdin-J statistics and results indicate poor agreement which mean that class tutors lack the skill of doing vision acuity testing of the students, or the instructions and guidline of vision testing are lacking, or training of class tutors is not adequate or was not done at the end of summer vacation by school health physician and school health supervisors.

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6. Conclusion and recommendations

It was concluded that the prevalence of visual problems among first grade schoolchildren is high 22.3% , vision screening program for eye care should be revised and actions and measures should be taken to control visual problems among schoolchildren. The findings indicate lack of parents' knowledge about causes, symptoms of visual problems, treatment and correction, vision screening program at school, follow up of their children, referral procedures, the dispensing of eye glasses free of charge from the M.O.H accredited optic center, lack of coordination and poor feedback between parents and teaching staff at school and health center , lack of time management at home regarding studying times, T.V watching times and distance far from T.V to sit , and computer using times, neglicance of schoolchildren at home and at school, lack of teachers' skills for vision acuity testing.

In the light of these results, the following recommendations are suggested:

1. Raising the teachers' skills through continous education and training:
    - Refreshing training courses at the end of summer vacation before the beginning of the new scholastic year for teachers in charge of school health services at schools on implementing vision screening program activities.
    - In-job training of all teachers (class tutors whether trained or not) in government schools by teachers in charge of school health services at the the beginning of the new scholastic year
    - Provision of training materials including C Snellin as screening instrument, instructions, guideline including information about visual problems(causes,symptoms, consequences, and how to keep safe eyes and vision), steps of vision screening of students and documentation in the student's school medical files, criteria of referral to ophthalmologist, how to fill in

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referral form F 80, registry of results of ophthalmic consultation and feed backs, form F 80 as referral paper.

2. Vision screening with follow up at school for all children from age of school entry on regular bases for early detection of visual problems and treatment may be initiated while there is still some plasticity in the visual system to correct the problem and improve vision status of the child, improving the referral.
3. Health education of students, families, and communities about visual problems (causes, symptoms, treatment, correction and consequences), risk factors, and how to keep safe eyes and vision
    - Setting health education plan according to need assessment to meet the needs of the targeted group (students, teachers, and families of students)
    - Provision of suitable health education materials
    - Improving communication and information skills using mass media to raise public awareness
4. Improving the role of supervision of M.O.H (school health physician in health center, school health supervisor in directorate of health, chief school health supervisor in school health directorate) and M.O.E (school health teacher and principal of the schools, school health supervisor in directorate of education, and chief school health supervisor in M.O.E), Monitoring, evaluation of vision screening program
5. Improving coordination and communication skills of health services including teaching staff and health providers in comprehensive health center or general hospital and the M.O.H accredited optic centers
6. More ophthalmic researches are needed at the primary and secondary level of care. At the primary care level: evaluation of vision screening program,

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obstacles to students' wearing eyeglasses, knowledge assessment, environmental risk factors need to be studied more in depth, intervention studies …… etc. At the secondary level of care: prevalence studies about various eye problems such as astigmatism, myopia, hypermetropia, anisometropia, amblyopia, squint, eye infections, color blindness, and dyslexia….etc.

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Appendices

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Annex 1

Permission letters from M.O.E. to the four Educational directorates in Greater Amman.

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الجامعة الأردنية
THE UNIVERSITY OF JORDAN
نائب الرئيس للشؤون الأكاديمية
Vice-President for Academic Affairs

الرقم : ٧/٨/ ٢٧٧٤
التاريخ : ٩/١/١٤٢٦هـ
الموافق : ٩/٣/٢٠٠٥م

معالي وزير التربية والتعليم

تحية طيبة، وبعد ،

فأرجو التكرم بالموافقة والإيعاز بتسهيل مهمة الطالبة نائلة الجوهري/ماجستير صحة عامة التي تقوم بإعداد دراسة بعنوان :

" المشاكل البصرية بين طلبة الصف الأول الأساسي في المدارس الحكومية في عمان الكبرى للعام الدراسي ٢٠٠٤/٢٠٠٥ " .

وذلك لتطبيق أدوات الدراسة من جمع البيانات وفحص الطلبة في المدارس الحكومية .

شاكرين لكم اهتمامكم بالجامعة الأردنية وتعاونكم معها .

وتفضلوا بقبول فائق الاحترام .

/رئيس الجامعة
نائب الرئيس للشؤون الأكاديمية

(الدكتور شتيوي العبد الله)

المملكة الأردنية الهاشمية
ديوان وزارة التربية والتعليم
الرقم .....
١٠ آذار ٢٠٠٥
إلى مدير رئيس قسم .....

هاتف: ٥٣٥٥٠٠٠ (٦-٩٦٢) فاكس: ٥٣٥٥٥١١ (٦-٩٦٢) عمان ١١٩٤٢ الأردن
Tel: (962-6) 5355000 Fax: (962-6) 5355511 AMMAN 11942 JORDAN
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بسم الله الرحمن الرحيم

وزارة التربيـــة والتعليـــم

١١٥٤٦

الرقـم ١٠/٣ التاريـخ ٢٩/١/١٤٢٦ الموافق ١٠/٣/٢٠٠٥

السيد مدير التربية والتعليم لمنطقة عمان الأولى
السيد مدير التربية والتعليم لمنطقة عمان الثانية
السيد مدير التربية والتعليم لمنطقة عمان الثالثة
السيد مدير التربية والتعليم لمنطقة عمان الرابعة

الموضوع : البحث التربوي

السلام عليكم ورحمة الله وبركاته،

تقوم الطالبة نائلة محمد خليل الجوهري بإعداد دراسة بعنوان " المشاكل البصرية بين طلبـــة الصـــف الأول الأساسي في المدارس الحكومية في عمان الكبرى للعام الدراسي ٢٠٠٤/٢٠٠٥ "، وذلـــك اســـتكمالاً لمتطلبـــات الحصول على درجة الماجستير، تخصص صحة عامة من الجامعة الأردنية ، ويحتاج ذلك إجراء فحص قوة الإبصـــار وفحص طبي للعيون لعينة من طلبة الصف الأول الأساسي في المدارس التابعة لمديريتكم.

يرجى تسهيل مهمة الطالبة المذكورة وتقديم المساعدة الممكنة لها.

مع وافر الاحترام

وزير التربية والتعليم

الدكتور
نـواف عبـابنـه
مدير ادارة البحث والتطوير التربوي

نسخة/ للسيد رئيس قسم البحث التربوي
نسخة / للملف ١٠/٣

هاتف : ٥٦٠٧١٨١ / ١١ فاكس : ٥٦٦٦٠١٩ ص . ب (١٦٤٦)

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بسم الله الرحمن الرحيم

المملكة الأردنية الهاشمية

وزارة التربية والتعليم

مديرية التربية والتعليم لمنطقة عمان الأولى

SYSTEM CERTIFICATION ISO 9001:2000 SGS

٢٥٧٢

الرقم: ١٣/٧/١٤ التاريخ ٢ / ٢ / ١٤٢٦ الموافق ١٣ / ٣ / ٢٠٠٥

مديـــري المدارس ومديراتهـــا

الموضوع/ البحث التربوي

السلام عليكم ورحمة الله وبركاتـــــــــه ؛؛

إشـــارة لكتاب معالي وزير التربية والتعليم رقـــم ٣/١٠/١١٥٤٦ تاريخ ٢٠٠٥/٣/١٠ تقـــوم الطالبة (نائلة محمد خليل الجوهري) بإعداد دراسة بعنوان " المشاكل البصرية بين طلبة الصف الأول الأساسي في المدارس الحكومية في عمان الكبرى للعام الدراسي ٢٠٠٤/٢٠٠٥ " وذلـــك اســـتكمالاً لمتطلـــبات الحصول على درجة الماجستير تخصص صحة عامة من الجامعة الأردنية. ويحتاج ذلك الى إجراء فحص قوة الابصار وفحص طبي للعيون لعينة من طلبة الصف الأول الأساسي في مدارسكم .

أرجو تسهيل مهمة الطالبة المذكورة، وتقديم المساعدة الممكنة لها بما لا يتعارض مع سير الدراسة .

واقبلوا فائق الاحترام ،،،

مدير التربية والتعليم

نسخة / مدير الشؤون التعليمية والفنية .

نسخة / ر.ق التعليم العام وشؤون الطلبة .

محمد اسحق سرحان
مدير الشؤون الإدارية والمالية

أ.ن ١٣/٣/٢٣

عمان – هاتف : (٥٦٩٩١٨١-٦) فاكس : (٥٦٩٩٥٨٠) ص.ب :(٩٥٧٩ اللويبدة)

قرار رقم : ٢٠٠٤/٣٤٦

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بسم الله الرحمن الرحيم

المملكة الأردنية الهاشمية

وزارة التربية والتعليم

مديرية التربية والتعليم لمنطقة عمان الثانية

الرقم: ع٢/ ٤٤٤/ ١٢/ ٧ التاريخ: ٦/٢/١٤٢٦هـ الموافق: ١٣/٣/٢٠٠٥م

مديري المدارس و مديراتها

الموضوع : البحث التربوي

السلام عليكم و رحمة الله وبركاته ،

إشـــارة لكتاب معالي وزير التربية والتعليم رقم ١١٥٤٦/١٠/٣ تاريخ ١٤٢٦/١/٢٩ هـ الموافق ٢٠٠٥/٣/١٠م

تقوم الطالبة / نائلة محمد خليل الجوهري بإعداد دراسة بعنوان " المشاكل البصرية بين طلبة الصف الأول الأساسي في المدارس الحكومية في عمان الكبرى للعام الدراسي ٢٠٠٥/٢٠٠٤م " وذلك استكمالا لمتطلبات الحصول على درجة الماجستير في تخصص الصحة العامة من الجامعة الأردنية ، و يحتاج ذلك إجراء فحص قوة الإبصار و فحص طبي للعيون لعينة من طلبة الصف الأول الأساسي في مدارسكم .

أرجو تسهيل مهمة الطالبة المذكورة و تقديم المساعدة الممكنة لها .

مـــع الاحترام ،،،

مدير التربية والتعليم

د. شفيق عبد الحميد الرواشدة

مدير الشؤون التربوية والفنية

نسخة / رئيس قسم التدريب و التأهيل و الإشراف التربوي

نسخة / كاتب الإشراف

تلفون (٤٦٤٦٣٠٤) فاكس (٤٦٣٧٨٤٤) ص.ب (٩٦٥٠) جبل اللويبدة

قرار رقم ٢٠٠١/١٦٦

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بسم الله الرحمن الرحيم

وزارة التربية والتعليم

مديرية التربية والتعليم لمنطقة عمان الثالثة

9001-2000[1][1]

المملكة الأردنية الهاشمية

الرقم ٣/٤/١٣ التاريخ ٣/٢/١٤٢٦هـ الموافق ١٤/٣/٢٠٠٥م

مديري المدارس ومديراتهـــــــــا

الموضوع/ البحث التربوي

السلام عليكم ورحمة الله وبركاته.

اشارة لكتاب معالي وزير التربية والتعليم رقم ٣/١٠/١١٥٤٦ تاريخ ٢٩/١/١٤٢٦هـ الموافق ١٠/٣/٢٠٠٥م.

تقوم الطالبة / نائلة محمد خليل الجوهري باعداد دراسة بعنوان (المشاكل البصريـــة بين طلبة الصف الأول الأساسي في المدارس الحكومية) في عمان الكبرى للعام الدراسي ٢٠٠٤/٢٠٠٥ م. وذلك استكمالا" لمتطلبات الحصول على درجة الماجستير تخصص صحة عامة من الجامعة الاردنية. وتحتاج ذلك اجراء فحص قوة الابصار وفحص طبي لعينة من طلبـــة الأول الأساسي في مدرستك.

أرجو تسهيل مهمة الطالبة المذكورة وتقديم المساعدة الممكنة لها. على ان لايؤثر ذلــــك على سير الدراسة في المدرسة.

واقبلوا الاحترام.

مدير التربية والتعليم

مـــدير الشؤون التعليمية والفنية

شفيـــق إسحـــق الشلودي

نسخة / مدير الشؤون التعليمية والفنيـــة

نسخة / ر.ق. التعليم العام وشؤون الطلبة

نسخة / م. التعليم النظامـــــــي

م /ي

تلفون : (٤١٦٦٣٠١-٤) فاكس (٤١٦٠٣٠٥) ص.ب (٩١٧٤) اللويبدة

قرار رقم ٩٩/٥٠

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مديري المدارس ومديراتها

الموضوع/البحث التربوي

السلام عليكم ورحمة الله وبركاتـــه ؛؛؛؛؛؛

اشـــارة لكـــتاب معالـــي وزيـــر التـــربية والتعلـــيم رقـــم ٣/١٠/١١٥٤٦ تـــــاريخ ١٤٢٦/١/٢٩هـ الموافـق ١٠ /٣/٢٠٠٥م٠

تقـــوم الطالـبة /**نائلـة محمـد خلـيل الجوهـري** بإعداد دراســـــة بعنوان (**المشـاكل البصـرية بـين طلبة الصف الأول الأساسي في المدارس الحكومية في عمان الكبرى للعام الدراسي ٢٠٠٤/٢٠٠٥**) ، وذلك استكمالاً لمتطلبات الحصول علـى درجـة **الماجستير** تخصص صحة عامة من **الجامعة الأردنية** ويحتاج ذلك إجـراء فحص قوة الأبصار وفحص طبي لعينة من طلبة الصف الأول الأساسي في مدرستك ٠

يرجـى تسهيل مهمة **الطالـبة** المذكورة وتقديم المساعدة الممكنة **لها** دون أن يؤثر ذلك على سير الدراسة في المدرسة ٠

مـــع الاحتـــرام

مدير التربية والتعليم

محمد احمد العبد الرحيم الزعبي

نسخة/ مدير الشؤون التعليمية والفنية
نسخة/ ر٠ق التعليم العام وشؤون الطلبة
نسخة/ م٠ التعليم النظامي
ت٠ل ٣/١٣

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Annex 2

List of names of the actually visited sample of government schools in Greater Amman according to educational Directorate

sample1	اناث	ذكور	عدد شعب	الحي	المديرية	اسم المدرسة
1 Isra' basic school	37	0	1	عرجان	1	الاسراء الاساسية
2Sameer Rifa'ie basic for boys	0	36	1	جبل عمان	1	سمير الرفاعي الاساسية للبنين
3Sameer Rifa'ie basic for girls	34	0	1	جبل عمان	1	سمير الرفاعي الاساسية للبنات
4 Shehda bint Abi Nasr basic school	34	0	2	الاشرفيه	1	شهدة بنت ابي نصر الاساسية
5 Huda Sha'rawi basic school	0	33	2	جبل الأشرفية	1	هدى شعراوي الاساسيه
6 Salma bint Omays basic/coed	16	52	3	الجوفة	1	سلمى بنت عميس &/ س
7 Hafsa Um Mouminin basic/coed	82	77	4	جبل الجوفة	1	حفصة ام المؤمنين س/م
8 Ghazziya alAmereyya	150	0	5	التاج	1	غزية العامرية الأساسية الثانية
9 Edbayyan basic/ coed	1	6	1	طريق ام البساتين	2	ادبيان/ الحي الغربي
10 Southern AlRabaheyya basic/coed	6	6	1	الرباحيه الجنوبيه وادالسير	2	الرباحيه الجنوبيه الاساسيه المختلطه
11 AlAmereyya basic/coed	1	6	1	طريق ناعور القديم	2	العامريه الاساسيه م
12 Um Al Birak basic /coed	10	8	1	ام البساتين	2	ام البرك الاساسيه المختلطه
13 Turki basic/coed	14	32	1	المدارس/وادالسير	2	تركي الاساسيه / م
14 Zabda basic for girls	7	0	1	المدارس/واد السير	2	زبده الاساسيه للبنات
15 Qurtuba basic /coed	24	17	1	ام السوس	2	قرطبه الاساسيه المختلطه
16 Zahra' secondary school / girls	39	0	2	حنو الصويفيه	2	الزهراء الثانوية للبنات
17 UmTufayl 2ry school /girls	25	20	2	جامعة العلوم التطبيقيه/شفاردران	2	ام طفيل الثانويه للبنات
18Tila' Al Ali basic for girls	56	0	2	الصالحين	2	تلاع العلي الأساسية للبنات
19 Princess Iman basic for boys/feminen administration	0	90	3	حاره3- أبو نصير	2	الاميره ايمان الاساسيه المؤنثه
20 Um Manee' basic/ coed school	81	78	5	ام تينه	2	أم منيع الأساسية المختلطة
21 Al- Lubban basic/ coed school	12	22	1	اللبن	3	اللبن الثانوية المختلطة
22 Salboud basic /coed school	27	0	1	سلبود	3	سلبود الأساسية المختلطة
23 Al Dhehaibeh the East basic/ coed school	22	26	2		3	الذهيبه الشرقيه الثانويه المختلطه
24Dhat Al Nitaqayn basic for boys/feminen administration	0	34	2	الجنوبي سحاب ش 60	3	ذات النطاقين الأساسية المؤنثة
25Ma'moura basic/ coed	108	114	4	الشمالي	3	المعمورة / س / م / سحاب
26Al-Marqap comprehensive secondary school for girls	46	0	1	اسكان المرقب	27	المرقب الثانوية الشاملة للبنات
27 Dakhliya housing basic/ coed	45	38	2	اسكان الداخلية ابوعلندا	27	اسكان الداخليه الاساسيه /م
28Al-Kindi basic school / boys	0	45	2	العبدلات ماركاالشماليه	27	الكندي الاساسيه
29Khadija bint Khowayled 2ry school / girls	92	0	2	الجراوين/سحاب	27	خديجه بنت خويلد الثانويه للبنات
30Al-Shifa' bint Abdulla basic for boys/feminen administration	0	56	3	الضباط/المحطة	27	الشفاء بنت عبدالله الأساسية المؤنثة
31 Khalida bint Hashim basic school for girls	90	0	3	جبل النزهة	27	خالدة بنت هاشم الأساسية للبنات
32 Ibrahim ibn Al- Aghlab basic school for boys	0	114	4	حي المدارس القويسمة	27	ابراهيم بن الاغلب الاساسية الاولى للبنين
33 Atika bint Abd Al-Mottalib basic school	156	0	4	ام نواره	27	عاتكة بنت عبد المطلب الاساسية للبنات
34 Abu Alanda basic / coed school	116	100	6	حي الشيخ	27	ابو علندا الاساسية المختلطة
35 Al-Karama basic /coed	167	95	8	السلاودة المقابلين	27	الكرامة الاساسية الثانية المختلطة

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List of names of the actually visited sample of government schools in Greater Amman according to educational Directorate

sample	اناث	ذكور	عدد شعب	الحي	المديرية	اسم المدرسة
36.Prince Mohammed basic school	0	25	1	وادي السرور	1	الامير محمد الاساسيه الثانيه
37.Aisha bint Talha basic	41	0	2	جبل عمان	1	عائشه بنت طلحه الاساسيه الاولى
38.Asma' bint Abi Bakr 2ry coed	0	198	5	جبل الزهور	1	اسماء بنت ابي بكر *اث ام*
39. Al-Jandaweel 2ry school for girls	61	0	2	الجندويل وادالسير	2	الجندويل الثانوية بنات
40. Um- AlQora basic/coed	70	66	4	غياضة وادالسير	2	ام القرى الاساسيه المختلطه
41.AlRaqkeem basic/coed	23	21	1	الرقيم	27	الرقيم الاساسيه المختلطه
42. Al-Juwayda 2ry girls school	80	0	2	المدارس مقابل الأسرة البيضاء	27	الجويدة الثانوية للبنات
43.Al-Qadiseyya basic for girls	81	0	3	الشهيد طبربور	27	القادسية الاساسية للبنات
44.Ajnadeen Basic school for girls	127	0	5	خريبة السوق	27	أجنادين الأساسية الثانية للبنات

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Annex 3

رقم الاستبانة استبانة المشاكل البصرية بين طلبة الصف الأول الإبتدائي
في المدارس الحكومية في عمان الكبرىللعام الدراسي 2005/2004

يعتبر الصف الاول مرحلة أساسية وتاريخيه في حياه الطفل لاعداده لتحمل مسؤولياته كمواطن صالح في المستقبل ويحتاج الطفل لحواس البصر والسمع واللمس لمساعدته على التعليم وبناء قدراته العقلية والذهنية ولبناء علاقـات اجتماعية أفضل وحثه على الرغبة في الذهاب الى المدرسة فإذا كان الطفل يعاني من مشاكل بصرية فلا بد مـن مساعدته بالمعينات البصرية للاستخدام الأمثل لها.

يرجى الإجابة على جميع الأسئلة لما ستعود به مصداقية الأجوبة بالنفع على الأطفال في المدارس مع التأكيد على التعامل مع المعلومات بمنتهى السرية ولن يسمح لأي شخص بالاطلاع عليها.

1. أسئلة الاهل(الوالدين) عن الوضع الأسري
لطفلهم الذي في الصف الأول الأساسي في العام الدراسي 2005/2004

اسم المدرسة: رقم هاتف المدرسة/ رقم هاتف الخلوي للمدرسة إن وجد:
العنوان
اسم الطالب: رقم هاتف ذوي الطفل/ رقم الهاتف الخلوي(إن وجد):
(ضع إشارة √ داخل المربع المناسب)

1.1 صلة معبئ الاستبيان	☐ أبوه	☐ أمه	☐ آخرين, حدد:								
1.2 جنس الطفل:	☐ ذكر	☐ أنثى									
1.3 عدد أفراد الأسرة:	☐										
1.4 المستوى التعليمي للأب	*أمي	**ملم	ابتدائي	إعدادي	أساسي	تلمذة مهنية	ثانوي	دبلوم متوسط	بكالوريوس فأعلى		
1.5 المستوى التعليمي للأم	*أمي	**ملم	ابتدائي	إعدادي	أساسي	تلمذة مهنية	ثانوي	دبلوم متوسط	بكالوريوس فأعلى		
1.6 عمل الأب:	☐ يعمل	☐ لايعمل									
1.7 عمل الأم:	☐ تعمل	☐ لاتعمل									
1.8 الدخل الشهري للأسرة:من كافة المصادر بالدينار الأردني	أقل من 100	100- 149.9	150- 199.9	200- 249.9	250- 299.9	300- 349.9	350- 399.9	400- 449.9	450 فأكثر		

ملاحظة: *أمي: الذي لا يستطيع القراءة أوالكتابة بأي لغة.
**ملم: الذي يستطيع القراءة والكتابة بأي لغة ولا يحمل أي مؤهل علمي.

2. أسئلة الاهل(الوالدين) عن حال البصر
لأفراد الأسرة ولطفلهم الذي في الصف الأول الأساسي في العام الدراسي 2005/2004

2.1 هل سبق وأن أُجرى فحص نظر لعيون طفلك؟	☐ نعم	☐ لا	☐ لا أعرف		
إذا كان الجواب نعم ,من الذي فحصه؟	☐ طبيب عام	☐ ممرض	☐ أخصائي عيون	☐ فني بصريات	☐ لا أحد
2.2 هل يلبس الطفل نظارة طبية قبل التحاقه بالمدرسة؟	☐ نعم	☐ لا			
2.4 هل ترتدي والدة الطفل نظارة طبية؟	☐ نعم	☐ لا			
2.5 هل يرتدي والد الطفل نظارة طبية؟	☐ نعم	☐ لا			
2.6 هل يرتدي احد أخوة الطفل نظارة طبية؟	☐ نعم	☐ لا			
2.7 هل يوجد قرابة بين والدي الطفل ؟ إذا كان الجواب نعم، ما درجة القرابة؟ أ - درجة القرابة الاولى :-	☐ نعم	☐ لا	☐ لا أعرف		
	☐ أ-ابن عم/عمة ☐ ب- ابن خال/خالة				
ب- درجة القرابة الثانية:-	☐ أ- ابن عم/عمة الاب(الأم) ☐ ب- ابن خال/خالةالاب(الأم)				

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3.معلومات الأهل عن مشاكل البصر و فحص النظر

3.1 هل تعرف أسباب ضعف الإبصار بشكل عام ؟ ☐ نعم ☐ لا	
3.2 بالمقابل قائمة بأسباب للعديد من الأمراض فإذا كنت تعرف أسباب ضعف الإبصار يمكنك الاستعانة بالجمل المكتوبة في القائمة بوضع دائرة حول رمز الجملة التي تعتقد أنها مناسبة اوصحيحة فيما يتعلق بأسباب ضعف الإبصار و يمكنك اختيارأكثر من جملة. كذلك يمكنك أن تكتب هنا أية أسباب أخرى تعرفها أنت.	أ)أسباب وراثية ب)سوء التغذية ونقص (فيتامين أ , ج,لحديد,البروتين) المهمة للبصر ج)الإصابة بالأمراض مثل أمراض السكري والشبكية وارتفاع ضغط الدم د) الاصابة المباشرة للعين نتيجة ضربة بأداة أو حادث أو دخول جسم غريب ه) سبب بيئي مثل الإضاءة السيئة, صغر حجم المنزل, قرب المنازل أوالعمارات من بعضها(متراصة). و) لا شيء مما ذكر ي) جميع ما ذكر ز) غير ذلك. أذكرها
3.3 هل تعرف أعراض ضعف الإبصار؟ ☐ نعم ☐ لا	
3.4 إذا كنت تعرفها: فما هي أعراض ضعف الإبصار؟ يمكنك الاستعانة بالجمل المكتوبة بوضع دائرة حول رمز الجملة التي تعتقد أنها مناسبة اوصحيحة ويمكن اختيار أكثر من جملة: أ- التدميع (الدمع) ب- تقطيب الحاجبين وتصغيرالعيون ج-تمييل الرأس ليرى بشكل أوضح د-تعب العيون أثناء العمل أو القراءة ه- عدم وضوح الرؤية مع زغللة وقد يرى الشيء اثنين بدل الواحد. و-إغلاق إحدى العينين ليرى أوضح ز- ألم في محجر العينين ي- احمرار وفرك العيون ك- الصداع م-الدوخة ن-لاشيء مما ذكر س-جميع ما ذكر	
3.5 أقرأ الأسئلة أوالعبارات التالية ضع إشارة√داخل المربع المناسب * هل من الضروري إجراء فحص النظر للطفل/الطالب سنويا حتى لو كان نظره سليما؟.	☐ نعم ☐ لا ☐ لا أعرف
* هل من الضروري إجراء فحص النظر للطفل/الطالب قبل دخول المدرسة للكشف المبكر عن مشاكل الإبصار؟	☐ نعم ☐ لا ☐ لا أعرف
*هل من الضروري زيارة الطبيب أخصائي العيون لمعرفة مشكلة البصر التي يعاني منها الطفل؟.	☐ نعم ☐ لا ليس من الضروري انتقل إلى النقطة *ب- ☐ لا أعرف
*ب-إذا كان الجواب لا, ليس ضروريا زيارة الطبيب أخصائي العيون لمعرفة السبب فأين يذهب الوالد بالطفل؟ اختر ما تراه مناسبا من الخيارات. ☐ إلى طبيب عام ☐ إلى ممرض المركز الصحي ☐ إلى فني نظارات ☐ غير ذلك. حدد:	

3.6 هل تعرف بأن مشاكل ضعف الإبصار يمكن علاجها وتصحيحها؟:	☐ نعم	☐ لا	
هل تعرف بأن مشاكل ضعف الإبصار تعالج وتصحح بما يلي:			
* قد يحتاج التصحيح لاستعمال نظارة طبية فقط.	☐ نعم	☐ لا	☐ لا أعرف
* قد يحتاج التصحيح تغيير عدسات النظارة الطبية عند إعادة فحص النظر دوريا؟	☐ نعم	☐ لا	☐ لا أعرف
* قد يحتاج التصحيح إجراء عملية جراحية ثم لاستعمال نظارة طبية.	☐ نعم	☐ لا	☐ لا أعرف
*التغذية الجيدة خصوصا تناول الأغذيةالغنية بفيتامين (أ) و(ج) والحديد بكميات مناسبة مثل اللحوم بأنواعها والحليب ومشتقات الألبان والجزر, فلفل أخضر حلو, بندورة, خيار بقدونس وجرجير والفواكه (برتقال, كلمنتينا, تفاح وغيرها) تحمي من ضعف البصر.	☐ نعم	☐ لا	☐ لا أعرف

	أوافق بشدة	أوافق	لاأوافق	لاأوافق بشدة
3.7 برأيك هل تؤدي مشاكل الإبصار إذا لم تعالج إلى:				
* تدني التحصيل العلمي للطفل.	☐	☐	☐	☐
* ضياع فرص الحصول على عمل يكفل له العيش الكريم مستقبلا.	☐	☐	☐	☐
* زيادة تعرض الطفل لأخطار التعثر والوقوع.	☐	☐	☐	☐
* يحجم الطفل عن مشاركة أقرانه في اللعب في المدرسة أو البيت.	☐	☐	☐	☐
* تتأثر نفسية الطفل ويصبح إنعزاليا ولا يشارك أقرانه في أية أنشطة.	☐	☐	☐	☐

3.8هل تقدم النصح والإرشاد لأبنائك سواء بصرهم طبيعي أو ضعيف ليحافظوا على سلامة عيـونهم وبصرهم؟	☐ نعم	☐ لا	
3.9 إذا كان نعم: اقرأ الأسئلة والعبارات التالية ثم اختار المربع المناسب بوضع إشارة √ بداخله: *هل تطلب من ابنائك إراحة البصر لعدة ثواني أثناء القراءة وأداء الواجبـات المدرسـية والأعمـال الدقيقةمثل الرسم والتلوين,النسيج والتطريز كل30-60 دقيقة وذلك بالنظر إلى جسم بعيد مـن خـلال	☐ نعم	☐ لا	☐ لا أعرف

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الشباك؟ *إذا وصف الطبيب نظارة طبية لابنك/لابنتك هل تطلب منه أن يلبسها أغلب الوقت ما عداعند النوم؟ * هل تطلب من ابنك/ابنتك عدم الجلوس لساعات طويلة أمام التلفزيون و الكمبيوتر(إن وجد)؟ * هل تطلب من ابنائك أن يلتزموا بعمل ما يلي؟ : - استغلال أوقات النهار للدراسة وأداء الواجبات المدرسية. -الابتعاد عن النظر المباشر إلى الضوء لأنه يؤذي البصر. -تجنب الأضواءالقوية عند القراءة وأداءالواجبات واستعمال التلفزيون والكمبيوتر(إن وجد)لأنها تؤذي البصر - إذا حدثت ظاهرة كسوف الشمس فيجب عدم النظر إلى الشمس لأنها تؤذي العيون وقد تؤدي للعمى - عدم اللعب بأدوات حادة أو ثاقبة مثل إبرة/ دبوس/ مسمار حتى لا يؤذي عينه أوعين الآخرين. - ممارسة اللعب في ساحة المنزل/العمارة - تشجيع الابن الذي لديه مشاكل بصرية بأن يلعب في ساحة المنزل/العمارة وهو لابس النظارة.	☐ نعم ☐ نعم ☐ نعم ☐ نعم ☐ نعم ☐ نعم ☐ نعم ☐ نعم ☐ نعم	☐ لا ☐ لا ☐ لا ☐ لا ☐ لا ☐ لا ☐ لا ☐ لا ☐ لا	☐ لا أعرف ☐ لا أعرف ☐ لا أعرف ☐ لا أعرف ☐ لا أعرف ☐ لا أعرف ☐ لا أعرف ☐ لا أعرف ☐ لا أعرف
3.9 بيئة المنزل بالإعتماد على رأي الأهل حسب فهمهم لمعنى السؤال: 3.9.1 بالنسبةللاضاءة في الغرفة التي يدرس بها ابنك/ابنتك: أ- هل الاضاءة الطبيعية في الغرفة كافية؟ ب- هل يوجد شباك في الغرفة ؟ ج- مساحة شباك الغرفة: (طول الشباكX عرضه) وعدد الشبابيك: د- مساحة الغرفة (طول الغرفةXعرضها)= هـ- كم شمعة قوة اللمبة في الغرفة ؟ و- هل يتم استخدام الاضاءة الطبيعية مع الاضاءة الصناعية نهارا؟	☐ نعم ☐ لا ☐ نعم ☐ لا مساحة الشباك=.....م^2 ..... م^2 ..... واط. ☐ نعم ☐ لا	☐ لا أعرف عدد الشبابيك=.....	
3.9.2 - وقت الدراسة: هل يدرس ابنك/ابنتك في أوقات النهار أو بعد الغروب: ما عدد الساعات التي يقضيها ابنك/ابنتك بحل واجباتـه ودروسـه نهاراً؟ ما عدد الساعات التي يقضيها ابنك/ابنتك بحل واجباته ودروسه ليلاً؟	☐ النهار ☐ بعد الغروب ☐ نهاراً وبعد الغروب .....ساعة .....ساعة		
3.9.3- ابنك/ابنتك والتلفزيون: *هل يتوفر تلفزيون في المنزل. * كم ساعة يقضي ابنك/ابنتك أمام التلفاز يوميا؟ *على بعد كم متر يجلس ابنك/ابنتك من التلفزيون:حدد الأمتار	☐ نعم ☐ لا ..... ساعة .....متراً		
3.9.4- الطفل والكمبيوتر: * هل يتوفر كمبيوتر في المنزل: * كيف يستعمل الطفل الكمبيوتر (الدراسة/الالعاب) باعتقادك؟: * ما هوالوقت الذي يقضيه الطفل أمام الكمبيوتر يوميا؟:	☐ نعم ☐ لا ☐ بكثرة ☐ بشكل متوسط ☐ قليلا ☐ لايستعمله .....ساعة		
3.9.5- الطفل والحركة: *هل يمارس الطفل الرياضة؟ * إذا كان الطفل يمارس الرياضة فكيف يمارسها ؟ * هل يتعثرالطفل ويكثر وقوعه على الأرض عندما يمشي أو يلعب؟ * هل سبق وأن تعثر ووقع على الأرض وأصيب بسبب مشاكل الإبصار؟ * هل هناك خوف عليه من حوادث السير بسبب مشاكل الإبصار؟ * هل سبق وأن أصيب بحادث سير بسبب مشاكل الإبصار؟	☐ نعم ☐ بشكل جيد ☐ نعم ☐ نعم ☐ نعم ☐ نعم	☐ لا ☐ مقبول ☐ لا ☐ لا ☐ لا ☐ لا	☐ لا أعرف ☐ يخاف اللعب ☐ لا أعرف ☐ لا أعرف ☐ لا أعرف ☐ لا أعرف

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3.9.6 فحص نظر الطفل في المدرسة:		
1.هل تعرف أن المعلمين يفحصون نظر جميع الطلاب سنويا من الصف الأول وحتى التوجيهي في المدرسة؟	☐ نعم	☐ لا
2. هل تعرف أنه يتم تحويل من يلزم من الطلاب إلى أخصائي العيون في المركز الصحي الشامل/ أو المستشفى الحكومي لإعادة فحص النظرلهم على نموذج ف 80 ؟	☐ نعم	☐ لا
3. هل تعرف انه إذا كانت نتيجة فحص أخصائي العيون أن الطفل بحاجة إلى نظارة سيتم وصف نظارة طبية علي وصفة طبية مبينا فيها قوة العدسات اللازمة لتحسين قوة الإبصار ؟	☐ نعم	☐ لا
4.- هل تعرف أنه يتم صرف وصفة النظارة الطبية التي وصفها أخصائي العيون مجانا من مركز البصريات الذي اعتمدته وزارة الصحة في هذا العام؟	☐ نعم	☐ لا
5.هل تم فحص نظر طفلك في المدرسة من قبل مربي الصف في بداية الفصل الأول هذاالعام؟	☐ نعم ☐ سليم(توقف)	☐ لا(توقف) ☐ بحاجة لاستشارة طبيب
6. إذا كان الجواب نعم. ماذا كانت نتيجة فحص النظر الذي أجراه الأستاذ؟ ملاحظة: إذا كان نظر إبنك /ابنتك سليما توقف عن الإجابة على بقية الأسئلة. أما إذا كان بحاجة لاستشارة طبيب فأكمل الإجابة على بقية الأسئلة.		
3.9.7-تحويل الطفل الى اخصائي العيون:		
أ.هل تسلمت نموذج ف 80 باسم إبنك /ابنتك على 3 نسخ موقعا من مديرةالمدرسة ومصدقا بختم المدرسة والذي تم تسليمه لإبنك /لابنتك لتحويله للطبيب اخصائي العيون ليفحصه؟	☐ نعم إذهب إلى النقطة ج	☐ لا لم أتسلم إذهب إلىالنقطة ب
ب. إذا كان الجواب لا ولم تتسلم نموذج ف 80 باسم طفلك.فما هي الأسباب؟ اختر مما يلي:		
i. نسي المعلم/المعلمة كتابة نموذج التحويل ولكنه أخبرابني/ابنتي بأهمية مراجعة أخصائي العيون	☐ نعم	☐ لا
ii. كتب المعلم/المعلمة نموذج التحويل ولكن نسي أن يعطيه لابني/لابنتي	☐ نعم	☐ لا
iii. كتب المعلم/المعلمة نموذج التحويل وأعطاه لابني/لابنتي ولكن النموذج ضاع	☐ نعم	☐ لا
iv. غير ذلك. حدد (اذكرها)		
ج.هل اصطحبت ابنك/ابنتك إلى أخصائي العيون في العيادات الحكومية (المركز الصحي الشامل أو المستشفى العام) ومعك نموذج التحويل ف 80 ؟	☐ نعم	☐ لا
د. إذا كان الجواب لا.هل اصطحبت ابنك/ابنتك إلى أخصائي العيون في عيادته الخاصة ؟	☐ نعم	☐ لا
هـ. إذا اصطحبت ابنك/ابنتك لأي أخصائي عيون لفحص عيون طفلك. ماذا كانت نتيجة الفحص؟	☐ سليم	☐ يحتاج نظارة طبية
و. إذا كان ابنك/ابنتك بحاجة إلى نظارة طبية هل تم كتابة وصفة للنظارة حسب نتيجة فحص العيون؟	☐ نعم	☐ لا
ز.هل راجعت مركزالبصريات المعتمد لدى وزارة الصحةهذا العام لصرف النظارة الطبية مجانا؟ (إذا كان الجواب نعم استمر, وإذا كان الجواب لا انتقل للقطة ل)	☐ نعم. استمر	☐ لا انتقل للنقطة ل
ط. هل تم تسليم فني مركز البصريات المعتمد لهذا العام نموذج ف 80 موقعا من مديرة المدرسة ومصدقا بختم المدرسة)مرفقاً معه نتيجة فحص الطبيب أخصائي العيون لصرف النظارة الطبية مجانا؟	☐ نعم	☐ لا
ي. هل تم صرف نظارة لابنك/لابنتك لدى مراجعة مركزالبصريات المعتمد لهذا العام ؟	☐ نعم	☐ لا
ك. هل قمت بإرجاع نسخة من النموذج عليها ملاحظات الطبيب أخصائي العيون إلى مديرة المدرسة/ أو مربي الصف للعلم بخصوص نتيجة فحص عيون ابنك/ابنتك ؟	☐ نعم	☐ لا
ل. إذا راجعت أخصائي العيون سواء في عيادة خاصة أو حكومية وتم وصف نظارة طبية ولكنك لم تراجع مركزالبصريات المعتمد لصرف النظارة. فما هي الأسباب والمبررات التي دعتك لذلك؟ اختر الأسباب من القائمة بوضع دائرة حول رقم السبب أواكتب اسباب غيرها:		
i. ارتفاع كلفة النظارة الطبية ولاأمتلك بطاقة تأمين صحي.		
ii. تمت كتابة الوصفة من قبل أخصائي العيون في عيادته الخاصة ولايتم صرف النظارة على حساب التأمين الصحي حسب اعتقادي		
iii. النظارة الطبية غير مشمولة بالتأمين الصحي حسب اعتقادي.		
iv. لا أعرف بأن النظارة الطبية تصرف مجانا من مركز البصريات المعتمد لدى وزارة الصحة إذا تم تحويل الطفل على نموذج ف 80 وحسب نتيجة الفحص.		
v. أعرف بأن النظارة الطبية تصرف مجانا من مركز البصريات المعتمد لدى وزارة الصحة ولكني أتحسس من لبس النظارة لأنها مؤشر على الإصابة بأمراض وراثية أو عائلية في العيون.		
vi. لاأحب أن يلبس طفلي نظارة لأن هذا يعني أن يلبسها إلى الأبد.		
vii. لبس النظارة عيب		
viii. غير ذلك. اذكرها هنا:		

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م. إذا لم تراجع أخصائي العيون سواء في عيادة خاصة أو حكومية وبالتالي لم يتم وصف النظارة الطبية ولم تراجع مركزالبصريات المعتمد فما هي الأسباب والمبررات التي دعتك لذلك؟ اختر الأسباب من القائمة بوضع دائرة حول رقم السبب أواكتب غيرها: i. لا أملك بطاقة تأمين صحي . ii. المركز الصحي الشامل أوالمستشفى العام بعيد ولا تتوفر وسيلة مواصلات مناسبة iii. لا أملك ما يكفي لدفع نفقات الذهاب للمركز الصحي الشامل أو المستشفى العام والعودة iv. لا أستطيع دفع أجور الطبيب الأخصائي سواء في عيادة خاصة أو حكومية. v. لا وقت لدي بسبب ظروف عملي vi. غير ذلك. اذكرها		

انتهت أسئلة الأهل وشكرا لتعاونكم د. نائلة الجوهري

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4.نتيجة فحص النظر الذي أجراه مربي الصف ويعبأ كما قام به وقت إجراء الدراسة:

4.1.أ- الطفل يعاني من مشاكل بصرية. ☐ نعم ☐ لا

4.1.ب- اذا كان نعم : هل يلبس نظارة طبية وقت الفحص؟ ☐ نعم يلبس ☐ لا يلبس

4.2- نتيجة فحص النظر إذا كان الطفل لا يلبس نظارة طبية:-

العين اليمنى: العين اليسرى:

4.3- نتيجة فحص النظرإذا كان الطفل يلبس نظارة :

4.2.1 نتيجة فحص النظر بدون نظارة:

العين اليمنى: العين اليسرى:

4.2.2 نتيجة فحص النظر بالنظارة:

العين اليمنى: العين اليسرى:

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5.مراجعة ملفات الطلاب الطبية المدرسية/صفحة قياس النظر في بداية العام الدراسي

5.1 قام مربي/مربية الصف بفحص نظر الطالب:
☐ نعم ☐ لا
5.2 إذا كان الجواب نعم:
نتيجة فحص النظر (أجراه المعلم) كما هو مدون في الصفحة في بدء العام الدراسي:
العين اليمنى: العين اليسرى:

5.3 اذا كان الجواب لا: هل كان الطالب غائبا وقت الفحص؟
☐ نعم ☐ لا
5.4 إذا كان الجواب نعم. هل تم إعادة فحص النظر للطالب الغائب؟
☐ نعم ☐ لا
5.5 إذا كان الجواب لا: لماذا لم يقم مربي/مربية الصف باعادة فحص نظر الطالب؟ ما هي الأسباب؟ توجه هـ ذه الأسئلة لمربي/مربية الصف.

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6.نتيجة فحص النظرالذي أجرته الطبيبة الباحثة و يعبأ كما قامت به وقت إجراء الدراسة

6.1- هل كان الطالب يلبس نظارة طبية وقت الفحص؟ ☐ نعم يلبس ☐ لا يلبس

6.2- نتيجة فحص النظر إذا كان الطفل لا يلبس نظارة طبية :-

العين اليمنى: العين اليسرى:

6.3- نتيجة فحص النظرإذا كان الطفل يلبس نظارة :

6.3.1 نتيجة فحص النظر بدون نظارة:

العين اليمنى: العين اليسرى:

6.3.2 نتيجة فحص النظر بالنظارة:

العين اليمنى: العين اليسرى:

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The questionnaire of visual problems among first grade schoolchildren in government schools in Greater Amman 2004/2005

1. Questions about demographic characteristics of child's family

-School's name and address
-School's telephone number -School's mobile number
-Student's name
-Student's family telephone number -Student's family mobile number

1.1 Questionnaire is filled in by: ☐father, ☐mother, ☐others

1.2 Student's sex: ☐male, ☐female

1.3 Number of family members: ☐members

1.4 Father's educational level: ☐illiterate*, ☐read & write**, ☐elementary, ☐preparatory, ☐basic, ☐occupational schooling, ☐secondary, ☐college diploma, ☐university B.C and more

1.5 Mother's educational level: ☐illiterate*, ☐read & write**, ☐elementary, ☐preparatory, ☐basic, ☐occupational schooling, ☐secondary, ☐college diploma, ☐university B.C and more

1.6 Father's employment status: ☐employed, ☐not employed

1.7 Mother's employment status: ☐employed, ☐not employed

1.8 Family monthly income in JD:

<100, 100–149.99, 150—199.99, 200-249.99, 250-299.99, 300-349.99, 350-399.99, 400-449.99, 450 and over.

Illiterate*: can't read or write in any language. Read & write: can read & write in any language but not having certificate.**

2.Vision condition of family members

2.1 Has vision acuity of your son in first grade ever been checked?

☐Yes, ☐No, ☐I don't know

2.2 Did your son in first grade wear eyeglasses before entering the school?

☐Yes, ☐No, ☐I don't know

2.3 If yes: who did check his vision?

☐Physician, ☐nurse, ☐ophthalmologist, ☐optometrist, ☐nobody

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2.4 Does student's mother in first grade wear eyeglasses?

☐Yes, ☐No, ☐I don't know

2.5 Does student's father in first grade wear eyeglasses?

☐Yes, ☐No, ☐I don't know

2.6 Do any of student's brothers or sisters in first grade wear eyeglasses?

☐Yes, ☐No, ☐I don't know

2.7 Is there any kinship between student's parents?

☐Yes, ☐No, ☐I don't know

If yes: to what degree?

a. First degree kinship: ☐cousin of father, ☐cousin of mother

b. Second degree kinship: ☐ cousin to father parents, ☐cousin to mother parents

3. Family knowledge about visual disabilities and vision acuity testing

3.1 Do you know the causes of visual disabilities in general?

☐Yes, ☐No, ☐I don't know

3.2 If yes: choose from the listed causes what you think is true. You can choose more than one cause and you can write other causes:

☐Genetic,
☐Malnutrition (vitamin A, C, Iron, protein deficiencies),
☐Diabetes mellitus, hypertension, diseases of the retina,
☐Direct eye trauma, injury, foreign body
☐Environmental: bad illumination, small size housing, crowded buildings,
☐All, ☐None, ☐Others: identify.

3.3 Do you know symptoms of visual disabilities?

☐Yes, ☐No, ☐I don't know

3.4 If yes: choose from the listed symptoms what you think is true:

☐Shedding tears,
☐Frowning and pressing eyes,
☐Tilting the head, ☐Eye fatigue while at work or reading
☐Not clear, blurred vision, double vision, ☐Shutting one eye to see better,
☐Pain in the eye cavity, ☐Rubbing the eyes and redness, ☐Headache,
☐Vertigo, ☐All, ☐None

3.5 Read the following questions and statements about student's vision testing:

3.5.1-Is it necessary to test student's vision acuity annually even if it is normal?

☐Yes, ☐No, ☐I don't know

3.5.2-Is it necessary to check vision acuity of student in 1st grade for early detection of visual disabilities?

☐Yes, ☐No, ☐I don't know

3.5.3 -Is it necessary for the student to visit an ophthalmologist to identify problems of vision suffered?

☐Yes, ☐No, ☐I don't know

3.5.6 - If no, where should the student's father take him to identify the problem? Choose a suitable option from the following:

☐Physician, ☐Nurse in health centre, ☐Optometrist, ☐Others, identify.

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3.6.a Do you know that visual disabilities can be treated and corrected?

☐I know, ☐I don't know,

3.6.b Do you know that visual disabilities are treated and corrected by:

- Using suitable eyeglasses only.
  ☐Yes, ☐No, ☐I don't know
- Changing lenses of eyeglasses on regular vision testing
  ☐Yes, ☐No, ☐I don't know
- Surgery, then using suitable eyeglasses.
  ☐Yes, ☐No, ☐I don't know
- Maintaining good diet especially micronutrients, meat, milk and dairy products, carrots, tomato, cucumber, paprika, parsley, fruits such as oranges, mandarins, apples and others to protect vision
  ☐Yes, ☐No, ☐I don't know

3.7 In your opinion, the consequences of visual disabilities if not treated may lead to:

- Reduced performance at school:
  ☐Strongly agree, ☐Agree, ☐Disagree, ☐Strongly disagree
- Loss of employment opportunities
  ☐Strongly agree, ☐Agree, ☐Disagree, ☐Strongly disagree
- increased chance of child's exposure to falling and stumbling
  ☐Strongly agree, ☐Agree, ☐Disagree, ☐Strongly disagree
- The child avoids participating in playing with peers at school or at home
  ☐Strongly agree, ☐Agree, ☐Disagree, ☐Strongly disagree
- The child is psychologically affected and is isolated without sharing activities with peers: ☐Strongly agree, ☐Agree, ☐Disagree, ☐Strongly disagree

3.8 Do you provide advice and guidance to your children with normal or defective vision to keep safe their eyes and vision: ☐Yes, ☐No

-If yes: read the following questions and sentences and tick in the appropriate block

3.8.1- Do you ask your children to relax their vision for few seconds during reading and when doing school work or close work every 30-60minutes by looking to distant objects through window?
☐Yes, ☐No, ☐I don't know

3.8.2 - If the physician prescribed eyeglasses for your child , do you ask your child to put on the glasses most of the time except when in bed?
☐Yes, ☐No, ☐I don't know

3.8.3- Do you ask your child not to use television or computer if available for long times more than three hours:
☐Yes, ☐No, ☐I don't know

3.8.4- Do you ask your children to do the following?

a) To study and do homework during day time.
☐Yes, ☐No, ☐I don't know

b) Not to look directly to source of light because it hurts vision
☐Yes, ☐No, ☐I don't know

c) To avoid strong light when reading, doing homework, and using television or computer if available because it hurts vision
☐Yes, ☐No, ☐I don't know

d) Not to look at sun eclipse when it occurs because it hurts vision and may cause blindness
☐Yes, ☐No, ☐I don't know

e) Not to play with sharp or penetrating objects such as pin and nail so as not to hurt own or other's eyes.

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☐Yes, ☐No, ☐I don't know

f) To use the building/house yard for playing

☐Yes, ☐No, ☐I don't know

g) To encourage the child with visual disability to play in the building/house yard wearing the eyeglasses

☐Yes, ☐No, ☐I don't know

3.9 Environment at home depending on opinion how child's family understand the questions:

3.9.1. Illumination in the child's study room:

a) Is natural illumination in the study room adequate?

☐Yes, ☐No, ☐I don't know

b) Is there a window in it?

☐Yes, ☐No

c) Window area of the study room (length x width) = m^2

Number of windows =

d) Area of the study room (length x width) = m^2

e) What is the power of the lamp in the room in Watt? Watt

f) Is artificial light used with natural illumination during daytime? ☐Yes, ☐No

3.9.2 Study times:

-Does your child study during daytime or after sunset?

☐Daytime, ☐After sunset, ☐Daytime and after sunset

- How many hours does your child spend daily for studying in daytime? hours
- How many hours does your child spend daily for studying at night?

3.9.3 The child and television (T.V)

- Is a T.V set available at home?

☐Yes, ☐No

- How many hours does your child spend daily watching T.V? hours
- How far in meters does your child sit from T.V?

3.9.4 The child and computer:

- Is a computer set available at home?

☐Yes, ☐No

- How does your child use the computer?

☐enormously, ☐moderately, ☐little, ☐does not

- How many hours does your child spend using the computer?.....hours

3.9.5 The child and physical activity:

- Does your child practice physical activity ?

☐Yes, ☐No, ☐I don't know

- If yes, how does he practice physical activity?

☐good, ☐acceptable, ☐afraid to play

- Has he ever fallen or stumbled while walking or playing?

☐Yes, ☐No, ☐I don't know

- Had he ever fallen or stumbled because of visual disability?

☐Yes, ☐No, ☐I don't know

- Is there any fear of car accident because of visual disability?

☐Yes, ☐No, ☐I don't know

- Had he ever been exposed to car accident because of visual disability?

☐Yes, ☐No, ☐I don't know

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3.9.6 Vision acuity testing for schoolchildren at school:

- Do you know that visual acuity testing is done for all schoolchildren from the first to the last grade at school by the class tutor?

☐Yes I know, ☐No I don't know

- Do you know that schoolchildren who have defective vision are referred using Form F 80 to the ophthalmologist in comprehensive health centre or general hospital to be examined and treated?

☐Yes I know, ☐No I don't know

- If ophthalmic examination results show that some schoolchildren need eyeglasses, do you know that eyeglasses will be prescribed by the ophthalmologist stating the power of the lenses in diopters to correct their vision?

☐Yes I know, ☐No I don't know

- Do you know that the prescribed eyeglasses are dispensed free of charge from the ministry of health accredited optic centre?

☐Yes I know, ☐No I don't know

- Was your child examined by class tutor at the beginning of the scholastic year?

☐Yes, ☐No

- If yes, what was the result of vision acuity testing done by the class tutor?

☐normal vision, ☐defective vision

N.B: If your child vision acuity is normal, stop giving answers to rest of the questionnaire.
If vision is defective, continue filling in as the child is in need of ophthalmic consultation.

3.9.7 Referring the child to the ophthalmologist:

A - Did you receive 3 carbonized copies of referral Form F 80 signed by the principal of the school bearing the official seal of the school and given to your child to go and see the ophthalmologist?

☐Yes, ☐No. If yes, go to point c. If no, go to point b.

B – State the reasons why, if you did not receive 3 carbonized copies of referral Form F 80 you may choose one or more from the following listed answers:

i. The teacher did not write or forgot to write the referral Form F 80, but told the child the result of vision testing and directed him to see an ophthalmologist.

☐Yes, ☐No.

ii. The teacher wrote the referral Form F 80, but forgot to give it to the child.

☐Yes, ☐No.

iii. The teacher wrote the referral Form F 80, and gave it to the child.

☐Yes, ☐No.

iv. Others please specify.

C – Did you visit with your child the ophthalmologist in comprehensive health centre or general hospital taking with you 3 carbonized copies of referral Form F 80?

☐Yes, ☐No

D – If no, did you visit an ophthalmologist in his private clinic?

☐Yes, ☐No.

E– What was the result of ophthalmic examination?

☐Normal vision, ☐defective vision, child needs eyeglasses

F –If your child's vision was defective and needed eyeglasses, were eyeglasses prescribed according to the ophthalmologist visual acuity testing?

☐Yes, ☐No.

G – Did you report to the ministry of health accredited optic centre to dispense eyeglasses free of charge?

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☐Yes, ☐No. (If yes, continue. If no, go to point k.)

H – Did you hand over to the optometrist in M.O.H accredited optic centre a carbonized copy of referral Form F 80 signed by the principal of the school bearing the official seal of the school and the prescribed power of the lenses in diopters by the ophthalmologist?

☐Yes, ☐No

I– Did the ministry of health accredited optic centre dispense the prescribed eyeglasses free of charge for your child?

☐Yes, ☐No

J – Did you bring back a carbonized copy of the referral Form F 80 with the prescribed power of the lenses in diopters and the diagnosis written by the ophthalmologist to the principal of the school or class tutor?

☐Yes, ☐No

N – State the reasons why, if you visited with your child the ophthalmologist in comprehensive health centre or general hospital or in his private clinic and eyeglasses were prescribed to your child, but if you didn't report to the ministry of health accredited optic centre to dispense eyeglasses free of charge, you may choose one or more of the following listed reasons for not reporting to the optic centre by ticking against the number of the chosen answer:

i. Eyeglasses are expensive and I don't have health insurance card
ii. The ophthalmologist in the private sector prescribed eyeglasses to the child, but in my opinion, these eyeglasses would not be dispensed on my health insurance card.
iii. Eyeglasses are not covered by health insurance in my opinion.
iv. I didn't know that the prescribed eyeglasses are dispensed free of charge if the child was referred using referral Form F 80 from the ministry of health accredited optic centre.
v. I knew that the prescribed eyeglasses are dispensed free of charge if the child is referred using referral Form F 80 from the ministry of health accredited optic centre but feeling sensitive to wearing eyeglasses because in my opinion this is an indicator of a familial or genetic eye problems.
vi. I don't want my child to wear eyeglasses because this means that my child will wear eyeglasses forever.
vii. Wearing eyeglasses can be shameful
viii. Others. please specify

M – State the reasons why, if you didn't visit with your child the ophthalmologist in comprehensive health centre or general hospital or in his private clinic and then eyeglasses were not prescribed to your child and you didn't report to the ministry of health accredited optic centre to dispense eyeglasses free of charge, you may choose one or more of the following listed reasons by ticking against the number of the chosen answer:

i. I don't have a health insurance card.
ii. The comprehensive health centre or general hospital is a long way off from me and I don't have a suitable means of transport
iii. I can't afford to pay for transport charges to the comprehensive health centre or general hospital and back home
iv. I don't have time because of my work commitments
v. Others. Please specify

The End of questions for the student's family

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4. Vision acuity testing results at the time of the study as done by class tutor

Quest.No.
School name

4.1 Schoolchild suffers from visual problem.

☐ Yes ☐ No

4.2 If yes, was the schoolchild wearing eyeglasses?

☐ Yes ☐ No

4.3 If no, vision acuity testing results as done by the class tutor:

Left eye Right eye

4.4 Vision acuity testing results if the schoolchild was wearing eyeglasses:

4.4.1 Vision acuity testing results without eyeglasses:

Left eye Right eye

4.4.2 Vision acuity testing results with eyeglasses:

Left eye Right eye

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5. Review of vision page of school student's medical file

5.1 Did the class tutor carry out vision testing at the beginning of the scholastic year?

☐ Yes ☐ No (go to 4.5)

5.2 If no; was the schoolchild absent at the time of the testing?

☐ Yes ☐ No (go to 4.5)

5.3 If yes (he/she was absent); was he/she tested after coming back?

☐ Yes ☐ No (go to 4.5)

5.4 Vision acuity testing results as done by class tutor and documented in vision page of school student's medical file at the beginning of the scholastic year:

Left eye Right eye

5.5 If no; the tutor did not carry out vision testing for the child and the child was not absent. State the reasons why.

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6. Vision acuity testing results at the time of conducting the study as done by the researcher

6.1 Schoolchild suffers from visual problem.

☐ Yes ☐ No

6.2 If yes, was the schoolchild wearing eyeglasses?

☐ Yes ☐ No

6.3 If not wearing eyeglasses, vision acuity testing results as done by researcher:

Left eye Right eye

6.4Vision acuity testing results if the schoolchild was wearing eyeglasses:

6.4.1 Vision acuity testing results without eyeglasses:

Left eye Right eye

6.4.2 Vision acuity testing results with eyeglasses:

Left eye Right eye

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Annex 4

Vision acuity testing results as done by the tutor

Table 1 Distribution of students according to vision acuity testing results as done by the tutor			
Better eye	**Other eye**	**Freq.**	**%**
6/6	6/6	855	73.8
6/6	6/9	93	8.0
6/9	6/9	122	10.5
Total of students with normal vision		1070	92.3%
6/6	6/12	9	0.8
6/6	6/18	-	-
6/6	6/24	-	-
6/6	6/36	1	0.1
6/6	6/60	-	-
6/9	6/12	22	1.8
6/9	6/18	3	0.3
6/9	6/24	-	-
6/9	6/36	-	-
6/9	6/60	-	-
6/12	6/12	31	2.7
6/12	6/18	2	0.2
6/12	6/24	1	0.1
6/12	6/36	-	-
6/12	6/60	-	-
6/18	6/18	9	0.8
6/18	6/24	-	-
6/18	6/36	-	-
6/18	6/60	-	-
6/24	6/24	7	0.6
6/24	6/36	1	0.1
6/24	6/60	-	-
6/36	6/36	1	0.1
6/36	6/60	1	0.1
6/60	6/60	1	0.1
Total of students with defective vision		89	7.7%

Table 2: The distribution of students who wear eyeglasses according to vision acuity testing results as done by the tutor							
1. Without wearing eyeglasses.				2. With wearing eyeglasses.			
Better eye	**Other eye**	**Freq.**	**%**	**Better eye**	**Other eye**	**Freq.**	**%**
6/6	6/12	2	14.3	6/6	6/6	1	7.1
6/6	6/36	1	7.1	6/6	6/9	2	14.3
				6/6	6/12	1	7.1
				6/6	6/18	1	7.1
6/9	6/18	2	14.3	6/9	6/9	2	14.3
6/12	6/12	2	14.3	6/12	6/12	4	28.6
6/12	6/24	1	7.1	6/12	6/24	1	7.1
6/18	6/18	1	7.1	6/18	6/18	1	7.1
6/24	6/24	3	21.4	6/36	6/36	1	7.1
6/24	6/36	1	7.1				
6/60	6/60	1	7.1				
Total	14	99.8%		Total	14	99.8%	Total

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Results of vision page review

Table 3: The distribution of students according to vision acuity testing page review			
Better eye	**Other eye**	**Freq.**	**%**
6/6	6/6	931	
6/6	6/9	23	
6/9	6/9	78	
Total		**1032**	**96.1%**
6/6	6/12	1	
6/6	6/18	4	
6/6	6/24	-	
6/6	6/36	-	
6/6	6/60	-	
6/9	6/12	6	
6/9	6/18	-	
6/9	6/24	-	
6/9	6/36	-	
6/9	6/60	-	
6/12	6/12	15	
6/12	6/18	3	
6/12	6/24	2	
6/12	6/36	-	
6/12	6/60	-	
6/18	6/18	2	
6/18	6/24	1	
6/18	6/36	-	
6/18	6/60	-	
6/24	6/24	5	
6/24	6/36	-	
6/24	6/60	-	
6/36	6/36	1	
6/36	6/60	1	
6/60	6/60	1	
Total		**42**	**3.6%**

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Annex 5
Kappa test & J statistics

Kappa test:

Kappa statistics is found in SPSS/ cross tabulation. To compare between the results of vision acuity testing that were obtained by the researcher and that obtained by the class tutor, Kappa test measures the agreement between evaluations of two persons when both are rating the same object. Avalue of 1 indicates perfect agreement. Avalue of 0 indicates that agreement is no better than chance. Kappa is used for tables, in which both are using the same variables category values and both variables have the same number of categories, where a weight variable (count) to specify the number of cases for each cell in the 7(researcher's description) X 7 (tutors' descriptions) contingency table.

Table 1: The variables in kappa test

Variable name	Variable lable/ value lable for vision acuity testing						
	"1"= 6/6	"2"=6/9	"3"=6/12	"4"=6/18	"5"=6/24	"6"=6/36	"7"=6/60
Researcher	1= 6/6	2 = 6/9	3 = 6/12	4 = 6/18	5 = 6 / 24	6 = 6 / 36	7 = 4 / 60
Tutor	1 = 6/6	2 = 6/9	3 = 6/12	4 = 6/18	5 = 6 / 24	6 = 6 / 36	7 = 4 / 60
Count	Weighting variable (the variable counts for each cell)						

The values are shown in Table 3 & Table 4 and for the right eye and Table 5 & Table 6 for the left eye where the weight variable was defined, the variable researcher was designated as the row variable and the variable tutors was designated as the column variable, the cell options selected are observed counts, expected counts, and row (researcher) percents.

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Table 2:The values of count variablle in each cell of the 7 x 7 table (Right eye)			
The researcher	The tutor	Count (right eye)	Count (left eye)
1	1	558	560
1	2	70	90
1	3	9	8
1	4	0	0
1	5	0	0
1	6	0	0
1	7	1	0
2	1	246	234
2	2	63	58
2	3	9	11
2	4	3	2
2	5	2	2
2	6	0	0
2	7	0	0
3	1	72	77
3	2	27	25
3	3	11	13
3	4	2	1
3	5	0	1
3	6	0	0
3	7	0	0
4	1	30	23
4	2	7	9
4	3	11	5
4	4	3	7
4	5	3	1
4	6	1	1
4	7	0	0
5	1	6	5
5	2	3	4
5	3	4	7
5	4	1	1
5	5	1	2
5	6	0	0
5	7	0	0
6	1	2	0
6	2	3	3
6	3	6	1
6	4	1	1
6	5	1	1
6	6	6	2
6	7	1	1
7	1	0	0
7	2	0	0
7	3	1	0
7	4	0	1
7	5	1	1
7	6	0	1
7	7	0	0

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Table 3 : output of vision acuity testing results for the right eye at the time of the study as done by the class tutor * vision acuity testing results as done by the researcher.

			vision acuity testing results as done by the class tutor right eye							
			6/6	6/9	6/12	6/18	6/24	6/36	6/60	Total
Vision acuity testing results as done by the researcher for the right eye	Other eye 6/6	Count	558	70	9	0	0	0	1	638
		Expected count	503.1	95.2	28.1	5.5	4.4	0.6	1.1	638.0
		% within vision acuity results for right eye as done by the researcher	87.5	11.0	1.4	.0	.0	.0	.2	100.0
	Other eye 6/9	Count	246	63	9	3	2	0	0	323
		Expected count	254.7	48.2	14.2	2.8	2.2	.3	.6	323.0
		% within vision acuity results for right eye as done by the researcher	76.2	19.5	2.8	.9	.6	.0	.0	100.0
	Other eye 6/12	Count	72	27	11	2	0	0	0	112
		Expected count	88.3	16.7	4.9	1.0	.8	.1	.2	112.0
		% within vision acuity results for right eye as done by the researcher	64.3	24.1	9.8	1.8	.0	.0	.0	100.0
	Other eye 6/18	Count	30	7	11	3	3	1	0	55
		Expected count	43.4	8.2	2.4	.5	.4	.0	.1	55.0
		% within vision acuity results for right eye as done by the researcher	54.5	12.7 %	20.0	5.5	5.5	1.8	.0	100.0
	Other eye 6/24	Count	6	3	4	1	1	0	0	15
		Expected count	11.8	2.2	.7	.1	.1	.0	.0	15.0
		% within vision acuity results for right eye as done by the researcher	40.0	20.0	26.7	6.7	6.7	.0	.0	100.0
	Other eye 6/36	Count	2	3	6	1	1	0	1	14
		Expected count	11.0	2.1	.6	.1	.1	.0	.0	14.0
		% within vision acuity results for right eye as done by the researcher	14.3	21.4	42.9	7.1	7.1	.0	7.1	100.0
	Other eye 6/60	Count	0	0	1	0	1	0	0	2
		Expected count	1.6	.3	.1	.0	.0	.0	.0	2.0
		% within vision acuity results for right eye as done by the researcher	.0	.0	50.0	.0	50.0	.0	.0	100.0
Total		Count	914	173	51	10	8	1	2	1159
		Expected count	914.0	173.0	51.0	10.0	8.0	1.0	2.0	1159.0
		% within vision acuity results for right eye as done by the researcher	78.9	14.9	4.4	.9	0.7	0.1	0.2	100.0

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Table 4 : output of vision acuity testing results of the right eye at the time of the study as done by the class tutor * vision acuity testing results as done by the researcher.

Researcher	Tutor	Count /Right eye
6/6	6/6	558
6/6	6/9	70
6/6	6/12	9
6/6	6/18	0
6/6	6/24	0
6/6	6/36	0
6/6	6/60	1
6/9	6/6	246
6/9	6/9	63
6/9	6/12	9
6/9	6/18	3
6/9	6/24	2
6/9	6/36	0
6/9	6/60	0
6/12	6/6	72
6/12	6/9	27
6/12	6/12	11
6/12	6/18	2
6/12	6/24	0
6/12	6/36	0
6/12	6/60	0
6/18	6/6	30
6/18	6/9	7
6/18	6/12	11
6/18	6/18	3
6/18	6/24	3
6/18	6/36	1
6/18	6/60	0
6/24	6/6	6
6/24	6/9	3
6/24	6/12	4
6/24	6/18	1
6/24	6/24	1
6/24	6/36	0
6/24	6/60	0
6/36	6/6	2
6/36	6/9	3
6/36	6/12	6
6/36	6/18	1
6/36	6/24	1
6/36	6/36	6
6/36	6/60	1
6/60	6/6	0
6/60	6/9	0
6/60	6/12	1
6/60	6/18	0
6/60	6/24	1
6/60	6/36	0
6/60	6/60	0

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Table 5: output of vision acuity testing results for the left eye at the time of the study as done by the class tutor * vision acuity testing results as done by the researcher.

			vision acuity testing results as done by the class tutor left eye							
			6/6	6/9	6/12	6/18	6/24	6/36	6/60	Total
Vision acuity testing results as done by the researcher for the left eye	Other eye 6/6	Count	560	90	8	0	0	0	0	658
		Expected count	510.4	107.3	25.5	7.4	4.5	2.3	0.6	658.0
		% within vision acuity results of left eye as done by researcher	85.1%	13.7%	1.2%	.0%	.0%	.0%	.0%	100%
	Other eye 6/9	Count	234	58	11	2	2	0	0	307
		Expected count	238.1	50.1	11.9	3.4	2.1	1.1	.3	307.0
		% within vision acuity results of left eye as done by researcher	76.2%	18.9%	3.6%	.7%	.7%	.0%	.0%	100.0%
	Other eye 6/12	Count	77	25	13	1	1	0	0	117
		Expected count	90.8%	19.1	4.5	1.3	.8	.4	.1	117.0
		% within vision acuity results of left eye as done by researcher	65.8%	21.4%	11.1%	.9%	.9%	.0%	.0%	100.0%
	Other eye 6/18	Count	23	9	5	7	1	1	0	46
		Expected count	35.7	7.5	1.8	.5	.3	.2	.0	46.0
		% within vision acuity results of left eye as done by researcher	50.0%	19.6%	10.9%	15.2%	2.2%	2.2%	.0%	100.0%
	Other eye 6/24	Count	5	4	7	1	2	0	0	19
		Expected count	14.7	3.1	.7	.2	.1	.1	.0	19.0
		% within vision acuity results of left eye as done by researcher	26.3%	21.0%	36.8%	5.3%	10.5%	.0%	.0%	100.0%
	Other eye 6/36	Count	0	3	1	1	1	2	1	9
		Expected count	7.0	1.5	.3	.1	.1	.0	.0	9.0
		% within vision acuity results of left eye as done by researcher	.0%	33.3%	11.1%	11.1%	11.1%	22.2%	11.1%	100.0%
	Other eye 6/60	Count	0	0	0	1	1	1	0	3
		Expected count	2.3	.5	.1	.0	.0	.0	.0	3.0
		% within vision acuity results of left eye as done by researcher	.0%	.0%	.0%	33.3%	33.3%	33.3%	.0%	100.0%
Total		Count	899	189	45	13	8	4	1	1159
		Expected count	899.0	189.0	45.0	13.0	8.0	4.0	1.0	
		% within vision acuity results of left eye as done by researcher	77.6%	16.3%	3.9%	1.1%	0.7%	0.3%	0.1%	100.0%

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Table 6 : output of vision acuity testing results for the left eye at the time of the study as done by the class tutor * vision acuity testing results as done by the researcher

Researcher	Tutor	Count / left eye
6/6	6/6	560
6/6	6/9	90
6/6	6/12	8
6/6	6/18	0
6/6	6/24	0
6/6	6/36	0
6/6	6/60	0
6/9	6/6	234
6/9	6/9	58
6/9	6/12	11
6/9	6/18	2
6/9	6/24	2
6/9	6/36	0
6/9	6/60	0
6/12	6/6	77
6/12	6/9	25
6/12	6/12	13
6/12	6/18	1
6/12	6/24	1
6/12	6/36	0
6/12	6/60	0
6/18	6/6	23
6/18	6/9	9
6/18	6/12	5
6/18	6/18	7
6/18	6/24	1
6/18	6/36	1
6/18	6/60	0
6/24	6/6	5
6/24	6/9	4
6/24	6/12	7
6/24	6/18	1
6/24	6/24	2
6/24	6/36	0
6/24	6/60	0
6/36	6/6	0
6/36	6/9	3
6/36	6/12	1
6/36	6/18	1
6/36	6/24	1
6/36	6/36	2
6/36	6/60	1
6/60	6/6	0
6/60	6/9	0
6/60	6/12	0
6/60	6/18	1
6/60	6/24	1
6/60	6/36	1
6/60	6/60	0

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For the right eye:

There are 558 cases in cell 11 (researcher6/6, tutor 6/6), 70 cases in cell 12 (researcher 6/6, tutor 6/9); 9 cases in cell 13 (researcher 6/6, tutor6/12), 0 cases in cell 14, 0 cases in cell 15, 0 cases in cell 16 , and 1 case in cell 17. In the second row there are 246 cases in cell 21(researcher 6/9, tutor 6/6), 63 cases in cell 22 (researcher 6/9 tutor 6/9), 9 cases in cell 23(researcher6/9, tutor 6/12) , 3 cases in cell 24 (researcher 6/9, tutor6/18), 2 cases in cell 25 (researcher 6/9, tutor6/24), 0 cases in cell 26 (researcher 6/9, tutor 6/36), and 0 cases in cell 27 (researcher6/9, tutor 6/60) and so on for the other rows. By adding all the values for count, the total number of cases will be N=1159 cases.

The frequencies table for the kappa data is shown in Table 3/ right eye and the kappa statistic output is shown in Table 4/ right eye

An index of agreement between the researcher and the tutor is to find the percent of times that each of them agree on vision acuity testing, agreements are shown in the diagonal cells (cells 11, 22, 33, 44,55, 66, and 77 in table 3: 558 agree on "1"=6/6, 63 agree on "2"= 6/9, 11 agree on "3"=6/12, 3 agree on "4"=6/18, 1 agree on "5"=6/24, 0 agree on "6"=6/36, 0 agree on "7"=6/60 for the right eye . So the total counts for agreements = 636 (54.9%) but it is not known if this is good or not because the level of agreement by chance is not known. The 'by chance' levels of agreement are given by the expected counts for these cells. The expected counts are found in the same manner that we found expected frequencies for Chi square,

E = (row total x column total) / N. The sum of the expected counts in the diagonal cells (cell 11=503.1, cell 22= 48.2, cell 33= 4.9, cell 44= .5, cell 55=.1 cell 66= .0,and cell 77= .0) gives the expected frequency of agreement = 556.8. Then compare the

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observed levels of agreement with the levels of agreement expected by chance by using the formula for kappa k= (Oa- Ea)/(N –Ea)

Where Oa is the observed count of agreement, Ea is the expected count of agreement, and N is the total number of respondent pairs.

(636 – 556.8)/ 1159 – 556.8 =0.13151

Kappa is the proportion of agreements after chance agreement has been excluded. Its upper limit is +1.00 (total agreement). If we agree at a chance level, kappa = 0.00, the lower limit of kappa depends on the distribution of row and column marginals and can fall between 0 and +1.00. (Normally we are interested in levels of agreement greater than chance rather than smaller than chance).

For the left eye:

There are 560 cases in cell 11 (researcher6/6, tutor 6/6), 90 cases in cell 12 (researcher 6/6, tutor 6/9); 8 cases in cell 13 (researcher 6/6, tutor6/12) , 0 cases in cell 14, 0 cases in cell 15, 0 cases in cell 16 , and 0 case in cell 17. In the second row there are 234 cases in cell 21(researcher 6/9, tutor 6/6), 58 cases in cell 22 (researcher 6/9 tutor 6/9), 11cases in cell 23(researcher6/9,tutor 6/12) , 2 cases in cell 24 (researcher 6/9, tutor6/18), 2 cases in cell 25 (researcher 6/9, tutor6/24), 0 cases in cell 26 (researcher 6/9, tutor 6/36), and 0 cases in cell 27 (researcher6/9, tutor 6/60) and so on for the other rows. By adding all the values for count, the total number of cases will be N=1159 cases.

The frequencies table for the kappa data is shown in Table 3/ left eye and the kappa statistic output is shown in Table 4/ left eye.

An index of agreement between the researcher and the tutor is to find the percent of times that each of them agree on vision acuity testing, agreements are shown in the diagonal cells (cells 11, 22, 33, 44,55, 66, and 77 in table 3: 560 agree on "1"=6/6, 58

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agree on “2”= 6/9, 13 agree on “3”=6/12, 7 agree on “4”=6/18, 2 agree on “5”=6/24, 2 agree on “6”=6/36, 0 agree on “7”=6/60 for the right eye . So the total counts for agreements = 642 (55.4%) but it is not known if this is good or not because the level of agreement by chance is not known. The ‘by chance’ levels of agreement are given by the expected counts for these cells. The expected counts are found in the same manner that we found expected frequencies for Chi square,

E = (row total x column total)/N. The sum of the expected counts in the diagonal cells (cell 11=510.4, cell 22= 50.1, cell 33= 4.5, cell 44= .5, cell 55= .1, cell 66= .0,and cell 77= .0) gives the expected frequency of agreement = 565.6. Then compare the observed levels of agreement with the levels of agreement expected by chance by using the formula for kappa k= (Oa- Ea)/(N –Ea)

Where Oa is the observed count of agreement, Ea is the expected count of agreement, and N is the total number of respondent pairs.

(642 – 565.6)/ (1159 – 565.6) =0.1287=0.129

Kappa is the proportion of agreements after chance agreement has been excluded. Its upper limit is +1.00 (total agreement). If we agree at a chance level, kappa = 0.00, the lower limit of kappa depends on the distribution of row and column marginals and can fall between 0 and +1.00. (Normally we are interested in levels of agreement greater than chance rather than smaller than chance).

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- J statistics for the right eye: sensitivity + specificity -1= J

Table 7:Comparison between researcher's and tutors' vision acuity testing results for the right eye / J statistic table			
		Researcher vision acuity testing results/right eye	
		Normal	Abnormal
Tutors vision acuity testing results / the right eye	Normal	558+246+70+63= 937	198-48=150
	Abnormal	24	11+2+ 11+3+3+1 4+1+1+ 6+1+1+1+ 1+1=48
	Total	638+323=961	112+55+15+14+1+1=198

J=937/961+48/189 -1= .975+.242 -1= .217=21.7% indicating lack of reliability of tutors' testing

- J statistics for the left eye:

Table 8:Comparison between researcher's and tutors' vision acuity testing results for the left eye / J statistic table			
		Researcher vision acuity testing results/right eye	
		Normal	Abnormal
Tutors vision acuity testing results / the left eye	Normal	560+90+234+58= 942	147
	Abnormal	23	13+1+1+ 5+7+1+1+ 7+1+2+ 1+1+1+2+ 1+1+1=47
	Total	658+307=965	117+46+19+9+3=194

942/965+ 47/147 -1= .976+ .319 -1=.295= 29.5% indicating lack of reliability of tutors' testing

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Annex 6

Visual acuity testing plan

3.8 Visual acuity testing plan: (Elder's and Abrams, 1978)

To assure quality of visual acuity testing, the researcher followed these steps:

- Seat the child on a chair 6 meters far from Snellen C chart at 1 meter height from floor.
- Start testing with the right eye and cover the left eye with palm of the hand or suitable cover. Then test the left eye while covering the right eye.
- Statrt testing from the sides of Snellen C chart not from the middle or from above to below.
- For testing the child who has eyeglasses: start testing her\his vision without eyeglasses when repeat testing with eyeglasses.
- Normal visual acuity is 6/6, 6/9 for one or both eyes. Cutt off point for visual acuity is 6/9 in one or both eyes without symptoms such as headache ,eye strain or tilt the head or close one eye to read or watch TV or see better or avoid activities require near vision.
- Repeat testing both eyes together if vision aquity 6/9 in one or both eyes (double check for quality assurance).
- If vision acuity is found to be 6/12 or more in one eye, refractory error is considered and the child must have eye glasses with correct refractive power.[30]

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Annex 7
Work plan

No.	Tasks to be performed	Dates
1	Permission obtained from University of Jordan and MOE	Week 1-6
2	Pilot study	Week 7
3	Field work: -Distribution and filling of questionnaires - Implementation of vision screening by tutor - Implementation of vision screening by researcher	Week 7-15: Week 7-8 Week 7-8 Week 9-15
4	Data entry and data cleaning	Week 16-20
5	Data analysis	Week 21-27
6	Report writing	Week 28-36
7	Discussion of recommendation and Dissemination to local authorities and district health team	Week 37-39
8	Feedback to community	Week 40-42
9	Monitoring research project	Continuous

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Annex 8

Budget:

Cost involved in fieldwork for visual impairment study:

Researcher implemented all the activities from own money since there is no other source of funding.

Budget category	Unit cost	Multiplying factor	Total cost
1.Transport costs Driver and his car	**1.Distribution of questionnaires** - 15 J.D/day (within Capital Amman) - 20 J.D/day (outside Capital Amman) **2.Collecting the questionnaires** 25 J.Ds/day day (within Capital Amman) 30J.Ds/day (outside Capital Amman)	**1. Distribution of questionnaires** -15 J.D/day x 3days for distribution of questionnaires for parents of schoolchildren in the sample of schools = 45 J.D -20 J.Ds/day x 3days for distribution of questionnaires =60J.Ds **2. Collecting the questionnaires** 25 J.Ds X 5days x 3weeks= 375 J.Ds for collecting the questionnaires and doing vision testing) 30 J.Ds x5days x 3weeks=450 J.Ds	**930 J.D**
2.Supplies: - Multi purpose paper 400 sheets - HP jet ink - Computer - Pens -Questionnaires -20 copies of the study	3 J.D x 6 25 J.D/bottle 300 J.D 1 J.D 0.015 J.D 1JD/Paper print out 3.5 J.D	18.0 J.D 25.0 J.D 300.0 J.D 1.0 J.D 0.015 x 1500 x 8 sheets= 180.0 J.Ds. 125 X 1 = 125 J.Ds 3.5 x 20 = 70 J.Ds	**836.5 J.D**
Total 10% contingency			**1766.5 J.D** **176.7 J.D**
Grand total			**1943.2J.D**

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المشاكل البصرية بين طلاب الصف الأول الابتدائي في المدارس الحكومية في عمان الكبرى 2004/ 2005

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ملخص

المشاكل البصرية هي مشاكل شائعة يحتاج الطفل لحواس البصر والسمع واللمس من أجل تحصيل علمي وأداء عقلي و ذهني متميز.

هدف الدراسة:
معرفة انتشار المشاكل البصرية بين طلاب الصف الأول في المدارس الحكومية في أمانة عمان الكبرى لعام2005 ودراسة علاقة بعض المتغيرات مثل الجنس, زواج الأقارب والمشاكل البصرية, معرفة مستوى معرفة الأهل حول المشاكل البصرية وبرنامج فحص البصر في المدرسة والتحويل لأخصائي العيون في المركز الصحي الشامل أو المستشفى العام وصرف النظارة الطبية مجانا من مركز البصريات المعتمد لدى وزارة الصحة ومقارنة نتيجة فحص مربي الصفوف بنتيجة فحص الباحثة لمعرفة مصداقية فحص مربي الصفوف.

منهجية الدراسة:
تم إجراء دراسة وصفية مقطعية واختيار 1159 طالبا من 44 شعبة صف أول من 44 مدرسة حكومية بها الصف الأول اختيرت بطريقة عشوائية منتظمة وفحص جميع الطلاب في عينة المدارس والصفوف وتم جمع البيانات ما بين 17 آذار و 27 نيسان من خلال استبيان يتكون من جزأين: جزء يعبأ من قبل أهل الطلاب والجزء الثاني قياسات فحص نظر الطلاب من قبل مربي الصفوف و الباحثة باستخدام أداة قياس فحص النظروهي Snellen C chart ونتيجة مراجعة صفحة فحص النظر في الملف الطبي المدرسي للطلاب. تم اعتبار قراءة 12/6 بأن الطالب لديه مشكلة بصرية وموجبة لتحويله لأخصائي العيون. تم استخدام الكمبيوتر والبرنامج الإحصائي SPSS في إدخال وتحليل المعلومات.

النتائج:
بلغ معدل انتشار المشكل البصرية 22.3% وتبين أن 36% من الآباء هم أقارب ولا توجد علاقة إحصائية بين زواج الأقارب وانتشار المشاكل البصرية. 12.7% من الأمهات يستعملن نظارة طبية و 17.6% من الآباء يستعملون نظارة طبية وهناك علاقة احصائية مع استعمال الأب للنظارة الطبية . 64% من الآباء يعرفون أسباب مشاكل البصر و أعراضه و12.7% منهم ذكر الصداع فقط . 70% ذكروا استعمال النظارة الطبية لتصحيح البصر.85% يعتقدون أن الإضاءة في الغرفة التي يدرس فيها الطفل كافية , 35% يستخدمون الإضاءة الصناعية في النهار. 67% من الطلاب يدرسون أقل من ساعتين.27.8% يقضي أكثر من 3 ساعات

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لمشاهدة التلفاز. 44.3% يجلسون على مسافة أقل من متـرين أمـام التلفـاز عنـد مـشاهدة البرامج.26.7% لديهم جهاز كمبيوتر ويقضي 14% منهم أكثر من 3 ساعات فـي اسـتعماله. 84% من الطلاب يمارسون الرياضة .2.2% تعثروا بسبب مشاكل الإبصار. 13% يخافون من الحوادث. 1% من الطلاب تعرض لحوادث سير بسبب المشاكل البصرية. كما تبـين أن 59% من الآباء يعرفون عن برنامج فحص النظر في المدارس وعن خطـوات التحويـل لأخـصائي العيون. 46% يعرفون عن صرف النظارات الطبية مجانا من مركز البصريات المعتمـد لـدى وزارة الصحة. 50% من الآباء أفادوا بأن طفلهم قد تم فحص نظره في المدرسة. تبـين أن 35 طالباً بحاجة لاستشارة طبية وتم وصف نظارة طبية ل 11 طالباً, 4 طـلاب مـنهم راجعـوا مركز البصريات المعتمد لدى وزارة الصحة وتم صرف النظارة الطبية لهم وطالب واحد فقـط قام بإرجاع نتيجة الفحص إلى مربي الصف. تمت مقارنة نتائج فحص النظر التي قام بها مربو الصفوف والتي قامت بها الباحثة وتبين أن نتائج فحص مربي الصفوف لا تتفـق مـع نتيجـة فحص الباحثة و تنقصها المصداقية.

الاستنتاجات:

ارتفاع معدل انتشار المشاكل البصرية بين طلاب الصف الأول, تدني مستوى معرفة الأهـالي فيما يتعلق بالمشاكل البصرية وبرنامج فحص النظر في المدرسة وخطوات التحويل لأخـصائي العيون وصرف النظارات الطبية مجانا من مركز البصريات المعتمد لدى وزارة الصحة. هناك قصور في التنسيق والاتصال والتغذية الراجعة بين الأهالي والمدرسة والمركز الصحي وقصور في الدور الإشرافي والرقابي على أعمال الصحة المدرسية في وزارتي الصحة والتربية والتعليم كما أنه لا توجد مصداقية لفحص مربي الصفوف للنظر.

التوصيات:

الاستمرار في برنامج فحص النظر في المدرسة, تدريب مربي الـصفوف و خاصـة حـديثي التعيين, التثقيف الصحي لهيئة التدريس والآباء والطلاب, تحسين الاتصال بين المدرسة والبيـت والمركز الصحي, تحسين وتفعيل الدور الرقابي والإشرافي لـوزارة الـصحة ووزارة التربيـة والتعليم, وإجراء البحوث الصحية في مجال الرعاية الأولية والثانوية للعيون.

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