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Attitudes of parents, students and teachers towards glasses use in Hanoi and Ho Chi Minh City



The Fred Hollow
Foundation



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Attitudes of parents, students and teachers towards glasses use in Hanoi and Ho Chi Minh City

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This survey was conducted by an independent research team. The team has made every attempt to accurately reflect the facts and the views that have been provided to the research team. The team takes full responsibility for any errors of fact or omission, or for any inadvertent misrepresentation of material provided. For comment, please contact Nguyen Linh Phuong office@rtccd.org.vn

Table of Content



Acknowledgement.....	vii
Executive Summary.....	viii
Introduction	1
Chapter 1: METHODOLOGY	2
1. Theoretical framework	2
2. Research objectives	3
3. Approach of information collection	3
4. Informant recruitment.....	3
5. Research tools.....	5
6. Survey team and schedule	6
7. Data management and analysis	6
8. Research limitations	7
Chapter 2: Students and Parents' Perspectives of glasses use	8
1. If children have eyesight problems, would parents allow children glasses wear as doctor prescription?.....	8
2. What do parents think about child glasses use?	8
3. What do students think about glasses use?.....	9
4. What do students think when seeing their friends using glasses?.....	12
Chapter 3: Obstacles to early detection, service access and glasses use	13
Obstacles to EARLY detection and EYE CARE service ACCESS	13
1. When should students go for eye checks: perspectives of students and parents.....	13
2. When students have a visual problem, do they tell parents about it?.....	13
3. Why do students not tell their parents about their visual problems?.....	14
4. If Students have a visual problem, who will they talk to?	15
5. When parents are informed by their children, what would they do?	15
6. To what extent, parents care about their children's visual problems?	16
7. Proportion of students receiving eye checks	19

Obstacles in using glasses	19
1. Do parents advise their children to wear glasses?	19
2. How many students still have eyestrain after wearing glasses?	20
3. To what extent, children use glasses in daily activities?	20
Chapter 4: Influencing factors to decision making in eye care service use	21
1. Which eye care services do parents trust?	21
2. What are criteria for students and their parents to choose glasses?	22
3. Who are decision makers?	22
4. What is average acceptable price?	23
5. How common were periodic eye-checks?	24
Chapter 5: User comments on FHF-funded free glasses	25
1. Do children like glasses from the program?	25
2. What do parents think about glasses provided by the program?	26
3. What did Parents and Students do with the free glasses if they did not use?	27
4. Did glasses issued by the program fit with refractive error level of students?	27
Chapter 6: Habitual behaviors of students may impact their eyesight	28
1. What are student study conditions at home?	28
2. Percentage of students not seeing letters on board clearly	29
3. Percentage of students reading books/newspaper/story in darkness or dim light....	30
4. How do students arrange their time for activities?	31
Chapter 7: School health system and refractive error prevention	32
1. Refractive error in students: increasing or decreasing?	32
2. School health: priority issues?	33
3. School health: function and competency?	33
4. Refractive error screening and preventive activities?	33
5. Communication approaches	35
Chapter 8: Results and Discussion	36
Chapter 9: Recommendations	39
Increase time for eye resting in students:	40
Annex 1: Other results	41
References	45

Content of Figures and Tables



1. Figure

Figure 1: Habitual behaviors that might have influences on refractive error development	2
Figure 2: Theoretical framework of barriers to glasses usage	3
Figure 3: Percentage of parents not agree to have their child wearing glasses as doctor prescription ...	8
Figure 4: Percentage of parents agree with the following statements	9
Figure 5: Percentage of Junior Secondary students agree with statements	9
Figure 6: Percentage of students (not) like glasses use by education level	10
Figure 7: Percentage of students do not like glasses use by area	10
Figure 8: Reason for not liking glasses use	11
Figure 9: Reason for liking glasses use	11
Figure 10: Percentage of Junior secondary students' comments about their friends wearing glasses.	12
Figure 11: Percentage of Primary students' comments about their friends wearing glasses	12
Figure 12: Signal symptoms for eye check: comparison between student and parent perspectives	13
Figure 13: Proportion of students having headache, eye pain, eyestrain, or blurred vision while doing their activities	14
Figure 14: Reasons why students may not inform their parents about their symptoms	15
Figure 15: Proportion of parents taking children to eye care services after being informed of child visual problem	15
Figure 16: Reason for parents not doing anything when being informed of child visual problem (N=327)	16
Figure 17: Percentage of parents take child to eye care among those with good awareness (N = 1127)	16
Figure 18: Reasons for not taking child to eye care although they thought it is important (N = 186)	16
Figure 19: Proportion of parents who do not know child time spending in studying, playing games, reading comic books	17
Figure 20: Proportion of junior secondary students brought to eye check by parents (N=3833)	19
Figure 21: Reason for not being checked, reported by students (N=1781)	19
Figure 22: Types of eye care services selected by parents	21
Figure 23: Preference criteria of glasses	22
Figure 24: The most preferred styles of glasses by students	22
Figure 25: Who decides whether buy glasses for students (N= 2402)	23
Figure 26: The latest eyes check (N=1102)	24
Figure 27: Percentage of students like and use glasses of the FHF program	25
Figure 28: Reason for not using the program glasses (N=35)	25
Figure 29: Parents' action with glasses issued by the program when students do not use them	27

Figure 30: Percentage parents thought the program lenses fit with child visual problems (N=139).....	27
Figure 31: Percentage students not feeling comfortable and having clear vision when wearing glasses of the program.....	27
Figure 32: Percentage of students having studying desk and desk lamp, feeling comfortable at desk ..	28
Figure 33: Student study conditions at home.....	28
Figure 34: Study conditions at home: comparison between those who use and do not use glasses	29
Figure 35: Percentage of students do not clearly see letters on board from their seats in class.....	30
Figure 36: Percentage of students reading books/newspaper/story in dim light	30

2. Table

Table 1: The content of forms	5
Table 2: Proportion of Students usually feel headache/ eyestrain but NOT telling their Parents	14
Table 3: Proportion of Parents who DON'T ask about or observe children's visual problems	17
Table 4: Average hours child spending on activities: comparison of reports by children and their parents.....	18
Table 5: Average hours child spending on activities: comparison of reports by students with and without glasses.....	18
Table 6: Proportion of parents who encourage their children to wear glasses.....	20
Table 7: Proportion of students with eye pain/eyestrain/headache when wearing glasses.....	20
Table 8: Proportion of students who usually wear glasses in their daily activities	20
Table 9: Price acceptance by Parents for a pair of glasses.....	24
Table 10: Study conditions at home by grade	29
Table 11: Average hours spending on activities per week across grades	31

3. Annex

1. Reason for parents not agree to have their child wearing glasses by region, city	41
2. Percentage of students do not like using glasses by city and grade.....	41
3. Percentage of students do not like using glasses by grade of each city	41
4. Reason for Students not to like wearing glasses by region and level	42
5. Reason for Students not to like wearing glasses by city and level	42
6. Reason for Students to like wearing glasses by region and level	42
7. Reason for Students to like wearing glasses by city and level.....	42
8. Proportion of Parents who don't care about their children's visual problems.....	43
9. Proportion of Parents who cannot manage their children's time in studying, playing games, reading comic books by region, city, level.....	43
10. Study conditions at home by region	43
11. The ratio of Students usually read books/newspaper/story in lack of light places by region, city, condition of using glasses	44
12. Percentage of secondary students feeling headache, eyestrain after some activities but has never gone to have eyes check.	44



Acronyms

FHF	Fred Hollows Foundation
HCMC	Ho Chi Minh City
IEC	Information Education and Communication
NS	Not significant
RE	Refractive errors
RTCCD	Research and Training Centre for Community Development
SMB	School Management Board
TV	Television
Exchange rate	
	1 USD = 20,000 VND

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Executive Summary

Introduction/Background:

The proportion of students with visual impairment due to refractive error in recent years has increased in Vietnam from an estimated 2.5% in 2002 to 10% in 2007 (The national survey on blindness by the Central Eye Hospital conducted). According to a recent study conducted by the Institute of Sciences and Education in 2008, the rate of refractive error in students increased dramatically as students progressed through school stages with rates of 18.67% in primary, 23.47% in secondary and 32.68% in high school.

In an effort to comprehensively reinforce eye care services, toward the 2020 optical goal and also to meet the needs of the Department of Health Hanoi and Eye Hospital in Hanoi, The Fred Hollows Foundation (FHF) Viet Nam has conducted several projects that provided education and free glasses to school age students.

The Research and Training Centre for Community Development (RTCCD) was contracted by FHF to design and implement a research study entitled 'Attitudes of parents, students and teachers towards glasses use in Hanoi and Ho Chi Minh City'. This research aims to provide information, contributing to the improvement of services for early detection and care of refractive error in children and the development of community-based communication strategies. It specifically focuses on parents and students in the FHF's project areas, (Hanoi and Ho Chi Minh city).

Objectives:

- Measure parents and students attitudes about student use of glasses for refractive error.
- Specify factors which impact parents' decisions about buying glasses for their children.
- Measure risky behavior leading to refractive errors in students.
- Determine barriers of glasses use in students.
- Propose suggestions to the communication program and intervention strategy of FHF in the future.

Methods:

The research was designed following principles of cross-sectional research, including 2 components: A quantitative survey using structured questionnaires and a qualitative study. The study was conducted in 16 schools in inner city and outskirts areas of 2 cities - Hanoi and Ho Chi Minh City -with the sample size of 8,481 students and 2,664 parents in 2011.

Results:

- When asking all students (with or without refractive error), the rate of students who disliked the idea of wearing glasses was quite high in both primary and secondary school students (more than 80%). Of these students who said they did not like the idea of wearing glasses, the main reason given by the secondary school students were regarding inconvenience, accounting for 46.5% and the primary school students stated reasons of aesthetic – ugliness and changing the eye’s form, accounting for 32%.
- When being requested to define the 3 most important factors for deciding to buying glasses, both parents and students emphasized three criteria ‘glasses are suitable with the eye condition’ (79%), ‘following doctor recommendation’ (68.3%) and ‘good quality’ (63.9%). However the analyses showed that there were up to 57% of students receiving free glasses who did not wear them because of not liking the glasses form and not liking the color of the glasses frame. These issues are mostly related to the appearance of the glasses. Students from inner city areas were particularly concerned about this criterion more than students from the outskirts.
- Nearly 30% of students who had frequent headache/eye pain/eyestrain/blurred vision after learning, playing games, reading books did not inform their parents about these signs. The main reason given by secondary students was that it is a normal problem (51.8% of students), and by primary students was that they didn’t dare to tell their parents mostly because they were afraid of having to wear glasses (31.3%).
- On average, each student has only 1.5 hours every day to play outdoors, including both the time playing at home and in school. This amount of outdoor-playing time in Vietnamese students is low compared to that of students in Thailand at the same age group (2.8 hours per day).

Recommendations:

- Head teachers and school health staff recommended to reduce students’ learning workload and eliminate extra-classes to increase children’s time spend outdoors. Also, they suggested removing daily exercise which is only a school formality; not valuable physical activity and use this time to increase the time for students to play outdoors and rest their eyes. Moreover, the availability of light in class and home also needs to be considered.
- Education programs are needed to promote positive attitudes about glasses use. They should be broadcasted by mass media (TV, radio and newspapers), especially the TV.
- Communication activities should be focused on parents and head class teachers of primary education, especially of the 1st and 2nd grades. Mothers should be the main target.

Introduction



Refractive Error (RE) is the situation of the eye's optical system being functionally reduced making vision blurred. It appears in 3 common forms: myopia, hypermetropia, and astigmatism. Refractive error is one of the leading causes of visual impairment or blindness in children.

The proportion of students with visual impairment because of refractive error in recent years has increased in Vietnam, from 2.5% in 2002 to 10%-25% in 2007[1]. The problem was found to be common in urban settings (26.14% in urban vs. 14.44% in rural). According to a recent study conducted by the Institute of Sciences and Education in 2008, the rate of refractive error was 18.67% in primary, 23.47% in secondary and 32.68% in high school students[2]. Also, other 2008 surveys implemented by the Hanoi Eye Hospital on 10,000 high school students in Hanoi indicated that many students with RE do not wear glasses or provided glasses are not adjusted regularly[3].

In an effort to comprehensively reinforce eye care services, toward the 2020 optical goal and also to meet the needs of the Department of Health Hanoi and Eye Hospital in Hanoi, The Fred Hollows Foundation (FHF) Viet Nam has conducted several projects that provided education and free glasses to students. However, there is no clear answer about the use of project-funded glasses among students. Although there appears to be willingness to pay modest amounts for glasses for adults in Vietnam, it is not known to what extent parents can afford for children's glasses and understand about refractive error. In addition, there is no available document reporting the concerns of school health system staff and head teachers on the refractive errors of students at primary nor secondary education.

With these questions in mind, the Research and Training Centre for Community Development (RTCCD) was contracted by FHF to design and implement a research study entitled 'Attitudes of parents, students and teachers towards glasses use in Hanoi and Ho Chi Minh City'. This research aims to provide information, contributing to the improvement of services on early detection and care of refractive errors, and the development of community-based communication strategies. It specifically focuses on parents and students in the FHF's project areas (Hanoi and Ho Chi Minh city).

The report includes nine chapters:

- Chapter 1: Methodology
- Chapter 2: Students and Parents' opinion of using glasses
- Chapter 3: Obstacles to early detection, service and glasses use
- Chapter 4: Influencing factors to decision making in eye care service use selection
- Chapter 5: User comments on free glasses by FHF program
- Chapter 6: Common behaviors of students regarding eye near work
- Chapter 7: School health system and refractive error prevention
- Chapter 8: Conclusions and Discussions
- Chapter 9: Recommendations

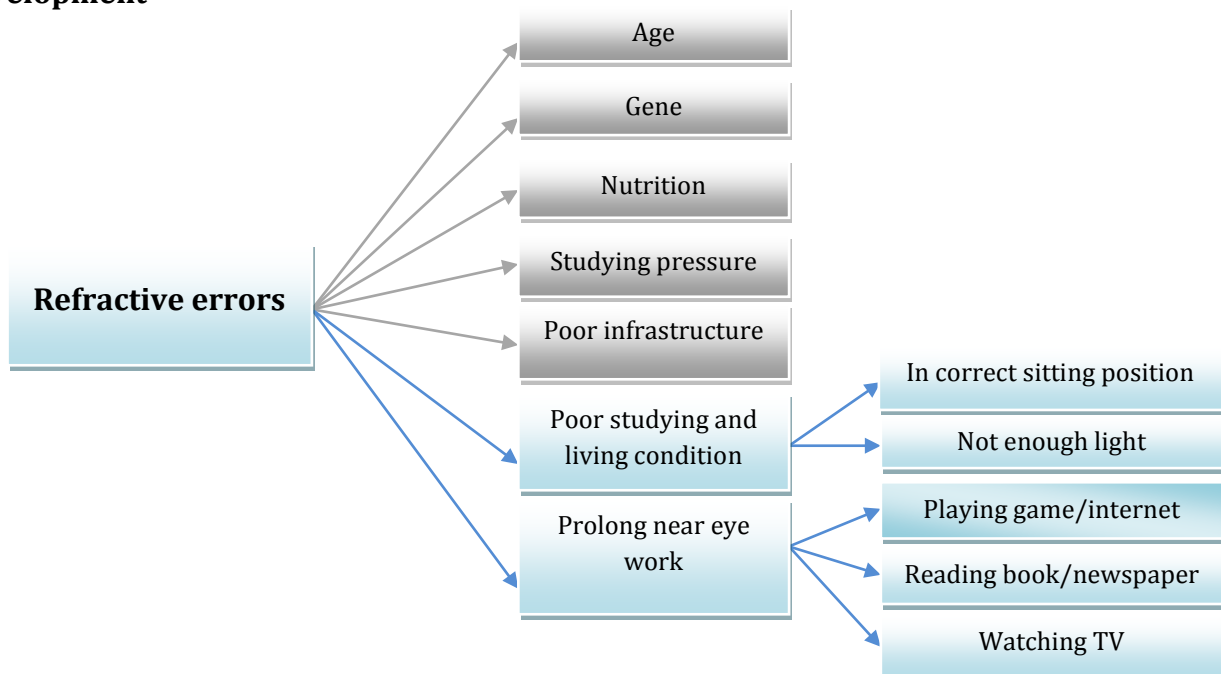


Chapter 1: METHODOLOGY

1. Theoretical framework

Research around the world have documented that there are many factors leading to refractive error[4, 5]. They are genes, age, gender, race, education, occupation, accommodation, nutrition and living habits. In this research, we only survey living habits in order to provide information to help build a communication strategy in Vietnam.

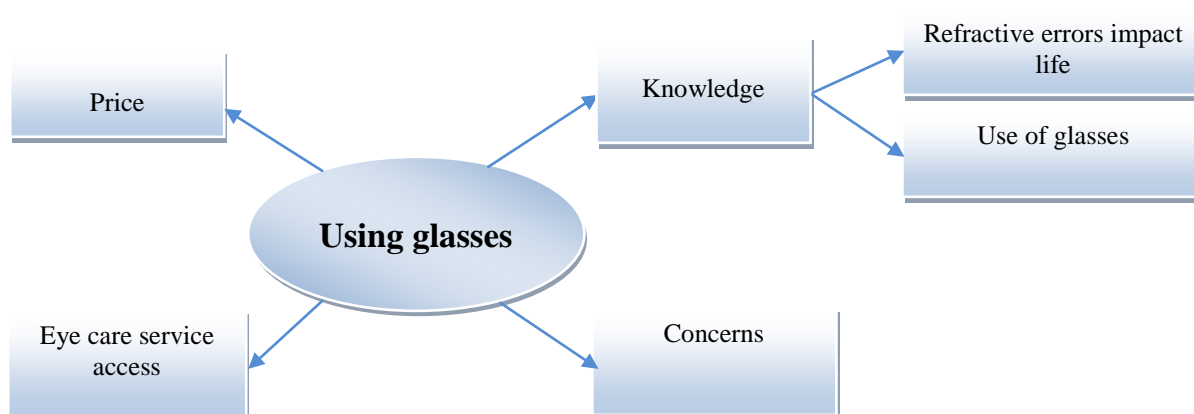
Figure 1: Habitual behaviors that might have influences on refractive error development



Research in China [6] indicates that there are many factors that might affect parents and students' decision to buy and use glasses. Three main reasons that mostly have had impact on parent decision are: (1) parents are too busy to take the child to glasses shops; (2) the child has not had their eyes tested;(3) glasses are too expensive.

In this research, we are open to measuring all barriers that might impede on child receiving glasses and have decided to record all comments from students and their parents. Potential barriers in Vietnam are summarized in Figure 2 below.

Figure 2: Theoretical framework of barriers to glasses usage



2. Research objectives

- Measure parents and students attitudes about student use of glasses for refractive error.
- Specify factors that impact on parents’ decision to buy glasses for their children.
- Measure risky behavior that may lead to refractive error of student.
- Determine barrier stopping students from using glasses.
- Propose suggestions to communication program and intervention strategy of FHF in the future.

3. Approach of information collection

Research is designed following principles of cross-sectional research, including 2 components:

<i>Component</i>	Component 1	Component 2
Approach	Quantitative survey using structured questionnaires	Qualitative study
Informants	<ul style="list-style-type: none"> • School-based survey with students • Mailing survey with parents 	<ul style="list-style-type: none"> • Teachers • Parents • Students

4. Informant recruitment

- Student: at 16 Primary and Junior Secondary schools in 2 inner city and outskirts districts in Hanoi and Ho Chi Minh City.
- Parents: Including:
 - Whose child has previously used or currently using glasses
 - Whose child always suffers from headache or eyestrain, eye pain in any of four activities (studying, watching TV, playing with computer and outdoor activities).
- School: representative of School Management Board, School nurse and Head teacher of class

Sample size of Students and Parents: component 1

a. Sampling method

Stage1 – District selection: randomly select 1 district per region where FHF implemented projects.

Stage 2 – School selection: in each district of inner city and outskirts area, randomly select 2 primary and 2 secondary from each.

Stage 3 – Class selection: in each grade, randomly select 3 classes.

Stage 4 – Student selection: select all students.

Stage 5 – Researcher instructs them how to fill up the form and student answer the self-administered questionnaires (grader 3 to 9) or direct interview students (graders 1 to 2).

Stage 6 – Researcher gives students a questionnaire and asks students to hand it over to parents for self-administration. Researcher comes to collect the parent self-administered questionnaires in the next two weeks (the actual period of replies took more than 3 weeks).

b. Surveyed School

	Hanoi		Ho Chi Minh	
Inner-city	Hoan Kiem		District 9	
	Primary	Junior Secondary	Primary	Junior Secondary
	Phuc Tan	Le Loi	Phuoc Long	Hoa Lu
	Hong Ha	Thanh Quan	Phuoc Binh	Truong Thanh
Outskirt	Soc Son		Cu Chi	
	Primary	Junior Secondary	Primary	Junior Secondary
	Phu Lo A	Thanh Xuan	Thi Tran	Thi Tran 2
	Tien Duoc	Thi Tran	Tan Thong	Tan Phu Trung

c. Number of Parents and Students surveyed

	Level	Hanoi		Ho Chi Minh	
		Students	Parents	Students	Parents
Inner-city	Primary	1073	337	1280	310
	Junior Secondary	823	355	953	390
Outskirt	Primary	1073	279	1175	270
	Junior Secondary	1112	416	992	307
Sample size		4081	1387	4400	1277

Of total 3405 parents who were sent questionnaires, the reply ratio is 78.2%. Due to some form is not appropriate (parents did not fill many questions or Student sibling fill the form instead of their parent), researchers decided to exclude 741 parent forms and final sample size to analyze is 8481 students, 2664 parents.

**Number of Parents, Students and Teachers took part in qualitative interview:
Component 2**

- *Parents: they are parents of students who were studying at 16 schools and parents of students not at those surveyed schools.*
- *Student: students joining the qualitative interview must be students who are studying at one of the 16 chosen schools.*
- *Teacher: 2 head teacher of class, 1 representative of School Management Board and 1 school Nurse.*

	Semi-structured interview	Group discussion
Parents	15	*
Students	19	3
Teachers	25	

(*): Access to parents was regularly conducted at nights. All parents refused to travel to sites other than their home for discussion. Therefore none of group discussion with parents was conducted.

5. Research tools

The research used three main quantitative questionnaires (form A, B and C) and section 4 of form A and B was specifically used for Students who received free glass from the FHF program.

Table 1: The content of forms

Form code	Subject to fill form	Form's main content
A	Primary Students	Attitude toward using glasses and risky behavior may lead to refractive error development
B	Junior Secondary Students	Attitude, perspectives of using glasses and risky behavior may lead to refractive error development
C	Parents	Parent's concerns to their child eyesight, Parent's reaction when being informed of child headache, eyestrain, eye pains and Parent's opinion toward wearing glasses.
Part 4 form A & B	Pupils who received free glass from FHF	Frequency of use and appropriateness of diopter glasses provided by FHF, Students and Parent's attitude and comments about glasses from the program.

Forms A and B were designed based on research objective and potential factors that might lead to refractive errors development which were identified by national and international research. Draft versions of questionnaires were commented on by doctors in Hanoi Eye Hospital, Fred Hollows Fund project team and international experts. The questionnaires were then pre-tested in Hanoi and adjusted based on comments of Students and Parents.

With semi-structured interview and focus group discussion, researchers used question guidelines which focused on the following questions:

- What do parents and students think about the practice of wearing glasses?
- What do parents think about the existing system of ophthalmological services and clinics: glasses selling, counseling and information for people with refractive error?
- What are the criteria for students and their parents to choose glasses? (shop identity, doctor's advice, friend's opinion, price, appearance, durability, etc.)
- What reasons made parents delay buying glasses for their children even when glasses use is recommended?
- Should the glasses be recommended to the child, how often child's eye capacity and glasses use are monitored and re-examined?
- What are potential barriers to child glasses use once it is recommended by doctor that glasses are required?
- To what extent are teachers concerned about students' sight and how do they express those concerns?
- What are the roles of school health workers in helping students to prevent sight impairment?

6. Survey team and schedule

The research was carried out from July to December 2011. The field data collection was intensively implemented in two months (September and October 2011). RTCCD designed and conducted the qualitative research and quantitative survey in schools. In addition, the school-based quantitative survey was supported by Year 4 students of the University of Social Sciences and Humanities in Hanoi and students of HCMC Medical University. These students were trained in one day about the research design, questionnaire content, interview technique, and how to fill in the form and form completion checking.

7. Data management and analysis

After collecting, questionnaire forms were checked for logic and completeness, coding and computerized using Microsoft ACCESS. The data was then imported to STATA version 11.0 to calculate statistics. Researchers used percentages to describe descriptive variables. Difference between awareness and action is decided by Chi-square test and p-value <0.05 is considered statistically meaningful. Average value compared between 2 groups (inner-city vs. outskirts; Hanoi vs. HCMC, primary vs. lower secondary) is used t-test and data in the p-value <0.05 is considered statistically meaningful. Table and Figure is generated in Microsoft Excel and exported to Microsoft Word file.

Qualitative information collected in individual interviews and group discussions. One third of interviews were tape recorded. Two thirds of interviews were manually recorded due to confounding sounds at interview sites or informants refusal to consent to recording. Interviews were transcribed and then analyzed under themes, providing insights and explanation to the figures extracted from quantitative analysis.

8. Research limitations

Some limitations of the research should be noted: One major limitation is the measurement bias caused by a small proportion of students who discussed and followed each other in selecting answers on the questionnaire. Researchers resolved this issue promptly by correcting students behaviors and asking teachers to warn students against doing this. At the same time, we instruct teachers about the content of all questions so that teachers could answer student concerns consistently.

This research used mailed surveys with parents and it is possible that this method could have brought rise to some issues. It is likely that there would be variation in parents' understanding of some questions and/or possible that some would omit answers to important questions. In addition, some forms were not answered by parents but students' siblings. However, given limitations of time and budget, mailing surveys to parents was the only feasible method and was suggested by all project partners. We tried to control errors by excluding forms filled by students' siblings from analysis sample and making phone calls to parents to obtain additional information that parents did not complete.

This research is a social study that did not go together with a clinical study to diagnose student diopters at the 16 schools. As such it is not possible to compare some factors concerning RE and non-RE students based on clinical diagnosis. Instead, the research team measured the prevalence of students who commonly suffered from headache, eyestrains, eye pain in daily work and compared the parameters of interest between the groups with and without those reported eye problems.



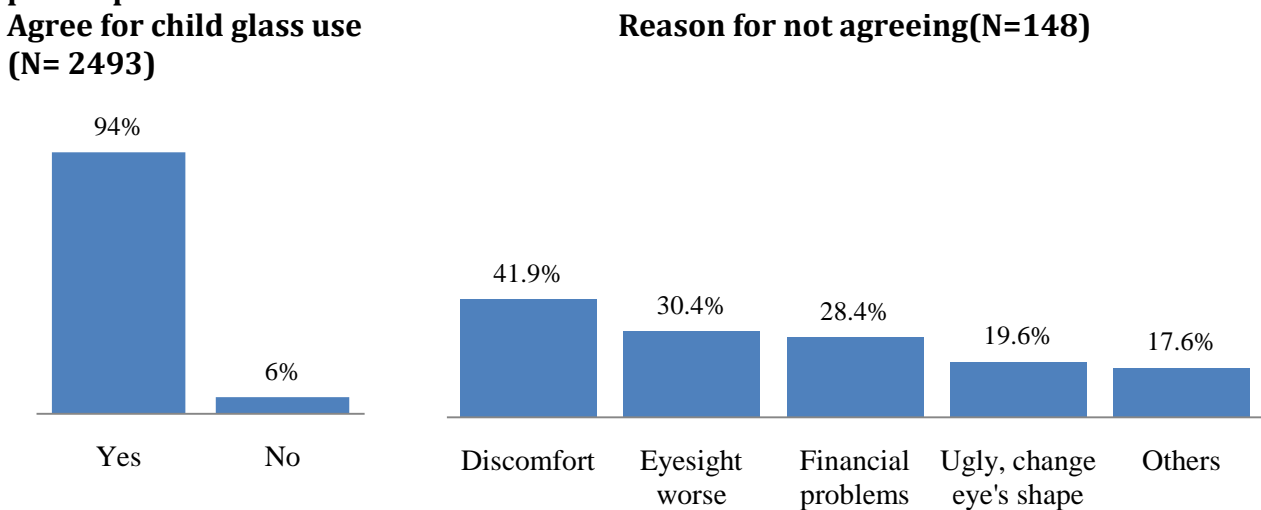


Chapter 2: Students and Parents' Perspectives of glasses use

1. If children have eyesight problems, would parents allow children glasses wear as doctor prescription?

When being asked “If your child had some problem with their eyes and was suggested to wear glasses by a doctor, would you let him/her wear glasses?”, 94% of Parents said “Yes”. Three main reasons given by the 6% of Parents who did not agree to provide glasses despite a doctor’s recommendation were: (1) wearing glasses is inconvenient in daily activities, (2) wearing glasses will increase diopters (3) financial issue, the family could not afford a pair of glasses (Figure 3). Reasons (1) and (3) usually stated at the same time by parents. There was no statistical difference between opinions of parents in Hanoi and those in HCMC ($p > 0.05$) (Annex 1.1).

Figure 3: Percentage of parents not agree to have their child wearing glasses as doctor prescription

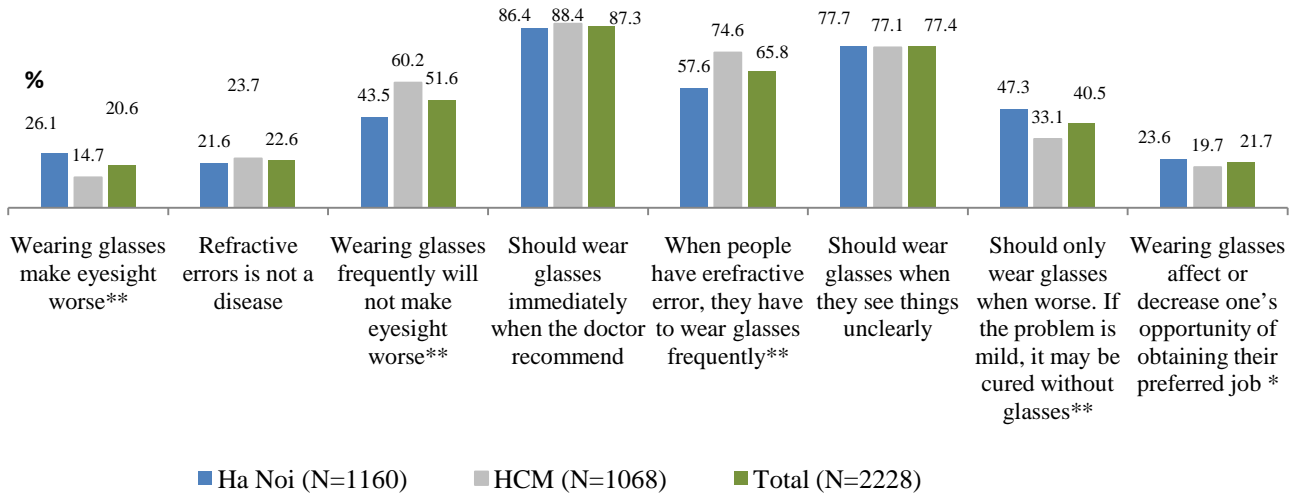


2. What do parents think about child glasses use?

Figure 4 shows that a higher proportion of parents in Hanoi have negative opinions about child glasses use than in HCMC. 26.1% of parents in Hanoi said that wearing glasses might increase diopters and 47.3% parents thought that child should only wear glasses when the situation becomes worse, if the problem is only mild, it may be cured without wearing glasses. The proportion was 14.7% and 33.1% respectively in HCMC ($p < 0.001$). 23.6% of parents in Hanoi believed that wearing glasses affect or decrease one’s opportunity of obtaining their preferred job while only 19.7% parents in HCMC thought so ($p < 0.05$).

Only 77.7% of parents in Hanoi and HCMC agreed that one should wear glasses when he/she could not see letters on classroom black board clearly. 15.3% of parents did not agree with this opinion and 7% did not know. There is no statistical difference between Hanoi and HCMC ($p > 0.05$).

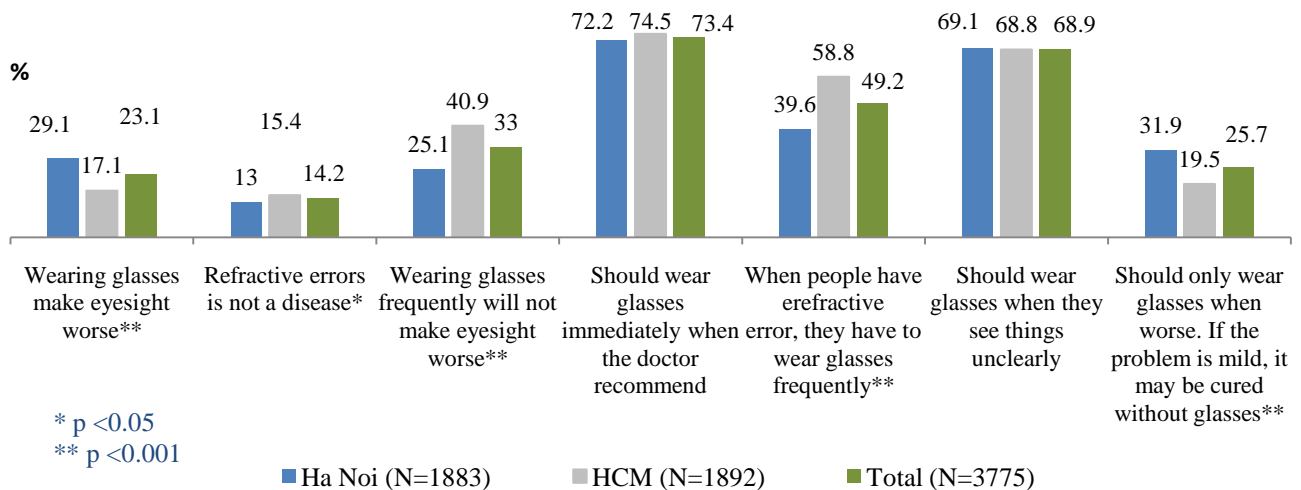
Figure 4: Percentage of parents agree with the following statements



3. What do students think about glasses use?

Junior Secondary students in Hanoi are hesitant about glasses use (Wearing glasses when having myopia, hyperopia, astigmatism will make your eyesight worse; one should wear glasses when he/she cannot see letters clearly on board; one should only wear glasses when the situation becomes worse; if the problem is only mild, it may be cured without wearing glasses). Meanwhile, Junior Secondary Students in HCMC are more open and tend to follow doctor’s prescription than students in Hanoi. Students’ perspectives are consistent with parents’ perspectives (Figure 5).

Figure 5: Percentage of Junior Secondary students agree with statements



At primary education, 9 out of 10 students asked “how do you feel if you have to wear glasses?”, answered that they do not like using glasses (86.3%). In junior secondary level, this ratio is 8 out of 10 (80.8%) (Figure6). The rate of students who do not like using glasses decreases gradually by grade levels, highest in grade 2 with 93.5% of students answer do not like and lowest in grade 9 (79.9%). This difference is statistically significant with p<0.001. There is also a small statistically significant difference between HN and HCMC (84.7% in Hanoi and 82.9% in HCMC with p<0.05) (Annex1.2). The rate of students in areas in the outskirts of the cities who do not like glasses use is higher than inner-city students in both primary and secondary education (p<0.001) (Figure7).

Figure 6: Percentage of students (not) like glasses use by education level

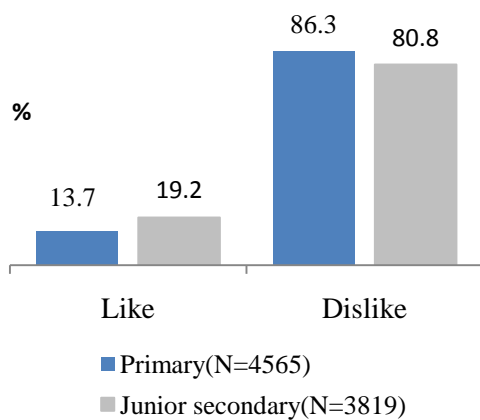
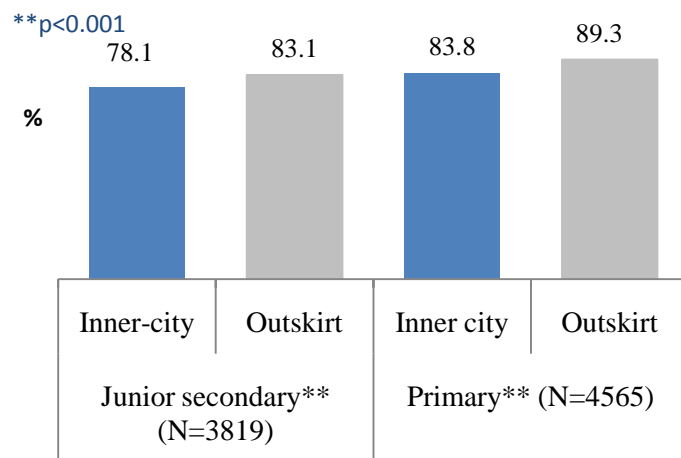


Figure 7: Percentage of students do not like glasses use by area



Reasons that students don't like wearing glasses: In primary students, the main reasons were because they looked bad and distorted eyes (31.9%), inconvenience (26%) and using glasses lead to eye pain (22.2%). In Junior Secondary Students, the main reasons were inconvenience, and that using glasses lead to eye pain (46.4% and 32.4% respectively) (Figure 8).

For negative reasons, such as: glasses looking ugly, wearing glasses is inconvenient, creates pain in the eyes, the difference was statistically significant between inner-city primary and city outskirts primary students. Primary, inner-city students are more concerned about glasses looking bad than those in the outskirts. Primary, outskirt students considered inconvenience, friend teasing and eye pain factors as more important than inner-city students ($p < 0.001$). These results are consistent with findings from semi-structured interviews with students wearing glasses.

“When I first used glasses, I felt uncomfortable because of the frames pressing against the sides of my forehead and causing pain. My eyes feel tired when using glasses for a long time. With glasses, I felt dazzled during driving. I cannot use glasses when running or jumping as the glasses fall off and break easily” (Grader 5 with RE, HCMC).

“...wearing glasses looks worse ... although I suggest them many times to buy fashionable glasses to wear but they insist not to wear glasses” (Boy with RE, Hanoi)

“wearing glasses like wearing 2 bottle's bottoms on the face” (Girl with RE, Hanoi).

Junior Secondary students, inner-city students did not like wearing glasses because they were afraid of increasing their diopters and that glasses would look bad ($p < 0.001$). Students in city outskirts were afraid of wearing glasses because they were afraid of friend teasing (16% in the outskirts and 12.4% in inner-city) with $p < 0.05$ (Annex1.4). Students in Hanoi do not like wearing glasses because they were afraid of increasing diopters and eye pain, and this effect was higher than in HCMC at junior secondary school level ($p < 0.001$). At primary school level, students in Hanoi listed the following reasons for not liking glasses: felt ashamed to wear them, were teased by friends and suffered eye pain more than ones in HCMC. In contrast, primary school students in HCMC tended to care more about the aesthetic factor of “looking ugly”, listing this as their reason for not wearing glasses ($p < 0.001$). (Annex1.5)

Reason for liking to wear glasses: For those who liked glasses use, the main reason given was that glasses help them see better (primary 63.7%, junior secondary 76.6%). There was no statistically significant difference between inner-city and city outskirts students at primary schools. However, at junior secondary schools, inner-city students were more likely to state the reasons of 'looking better' (inner-city 26.6% and 20.2% outskirt) and 'can sit at the first table line of the class' (inner-city 9.4% and outskirt 4%) with $p < 0.05$ (Annex 1.6 & 1.7).

"I feel wearing glasses helps me see better and I also look better. If I take off the glasses, I cannot see clearly. If I have to choose between wearing glasses and not wearing glasses, I like to wear them because I am used to them. If I do not wear them I feel like I am missing something" (Boy with RE, grade 9, Hanoi).

Figure 8: Reason for not liking glasses use

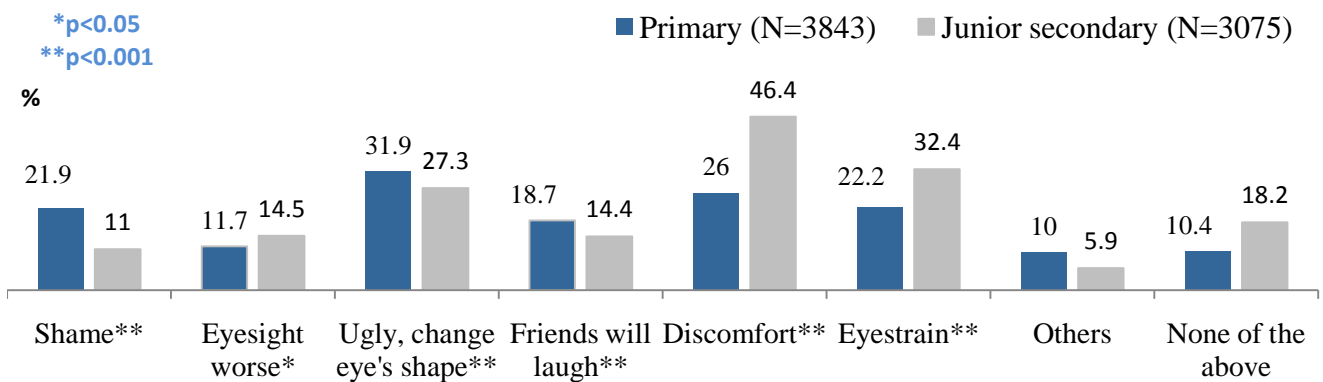
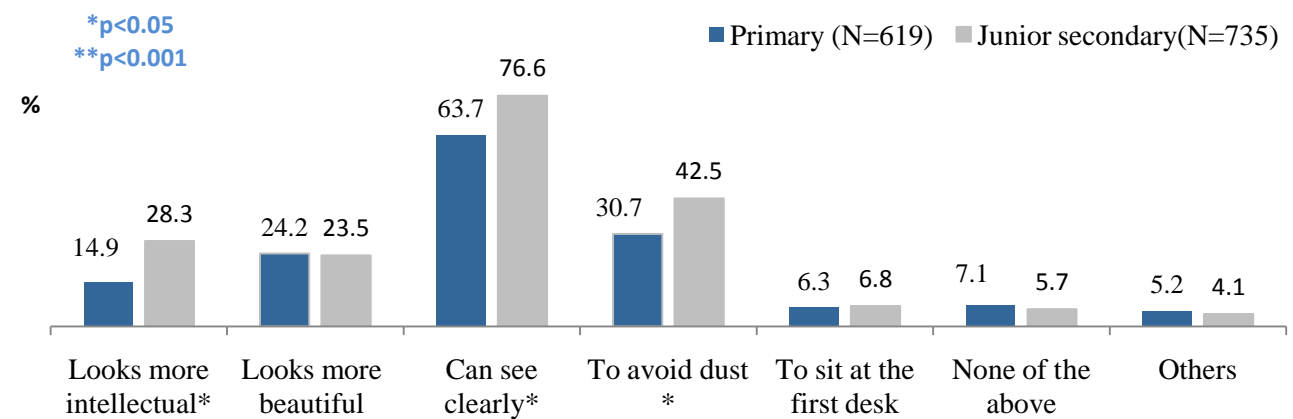


Figure 9: Reason for liking glasses use



4. What do students think when seeing their friends using glasses?

Although only 19.2% junior secondary students liked glasses if they themselves had to wear them (Figure 6), but up to 41% junior secondary students provided positive comments in regards to their classmates wearing glasses because they 'look more intellectual'. 13.1% of students have a bad impression about wearing glasses because they 'look like wearing 2 bottle bottoms in their face' (Figure 10). In primary schools, 8.1% students like wearing glasses as their friends do. There is no statistical difference between the two cities.

Figure 10: Percentage of Junior secondary students' comments about their friends wearing glasses

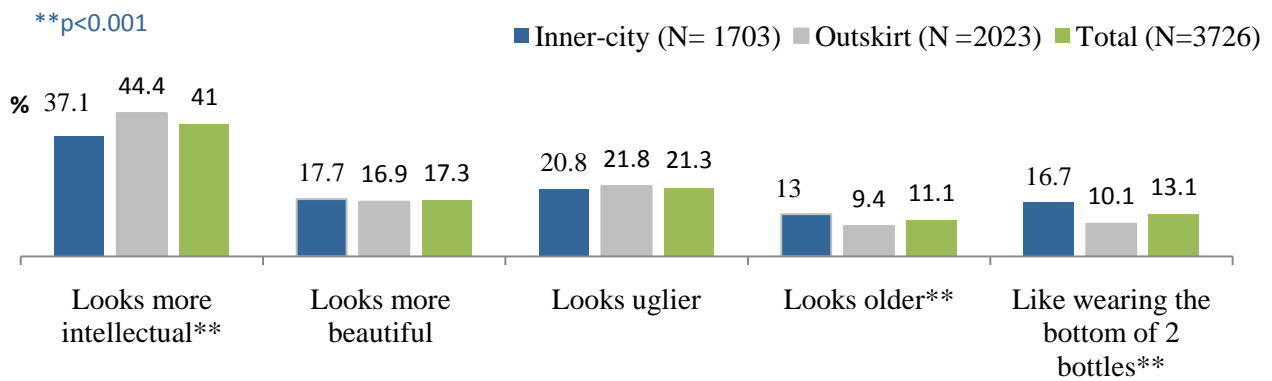
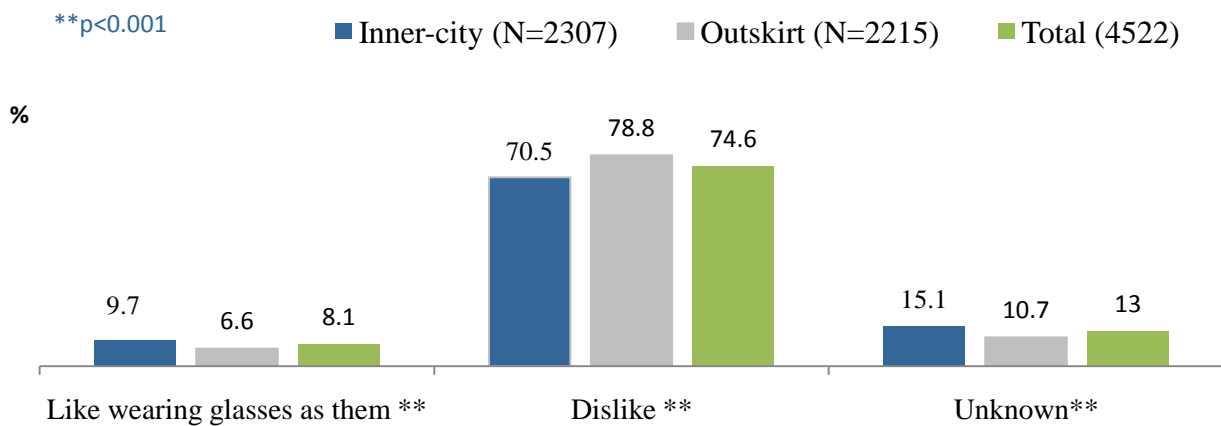


Figure 11: Percentage of Primary students' comments about their friends wearing glasses





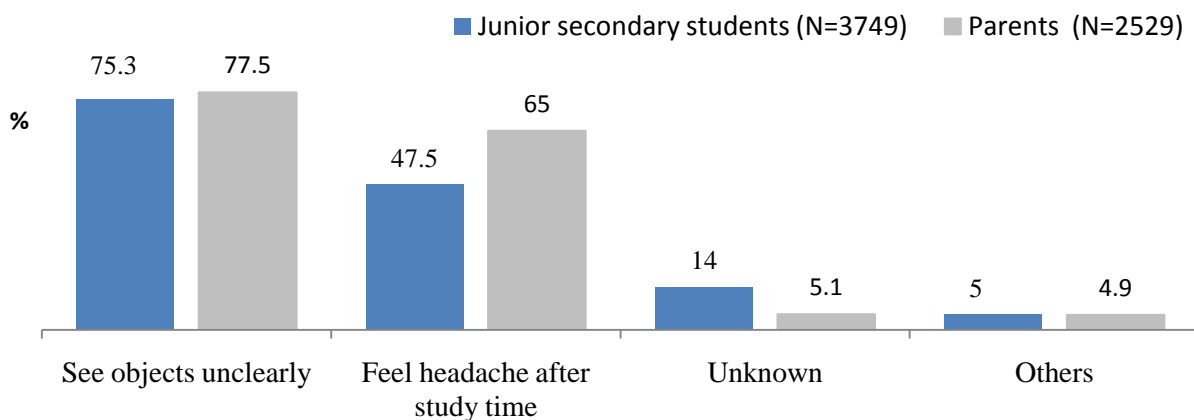
Chapter 3: Obstacles to early detection, service access and glasses use

Obstacles to EARLY detection and EYE CARE service ACCESS

1. When should students go for eye checks: perspectives of students and parents

About 75.3% students and 77.5% parents think that when one cannot see things clearly, he/she should go for an eye check. Sixty five percent parents say that one should go to the doctor when he/she has a headache, or eyestrain after class (Figure 12).

Figure 12: Signal symptoms for eye check: comparison between student and parent perspectives



2. When students have a visual problem, do they tell parents about it?

Among 3816 junior secondary school students interviewed, three out of 10 (equivalent to 27.2%) had symptoms of headache, eyestrain, eye pain or blurred vision while studying, two (20.9%) had the same symptoms while playing computer games or watching TV, and one out of seven had eye pain while reading books (14.5%)(Figure 13).

However, nearly 30% students do not inform their parents about their headache/eye pain, and eyestrain/blurred vision (Primary: 27.4%, Junior secondary: 28.4%)(Table 2).

Parents were interviewed with the same question: “Have your children told you about experiencing symptoms of frequent headache/ eye pain or eyestrain/ blurred vision when they do these activities?” 37.7% parents of those in junior secondary school and 20.8% parents of those in primary school said their children never told them about headache/ eye pain or eyestrain/ blurred vision.

Figure 13: Proportion of students having headache, eye pain, eyestrain, or blurred vision while doing their activities

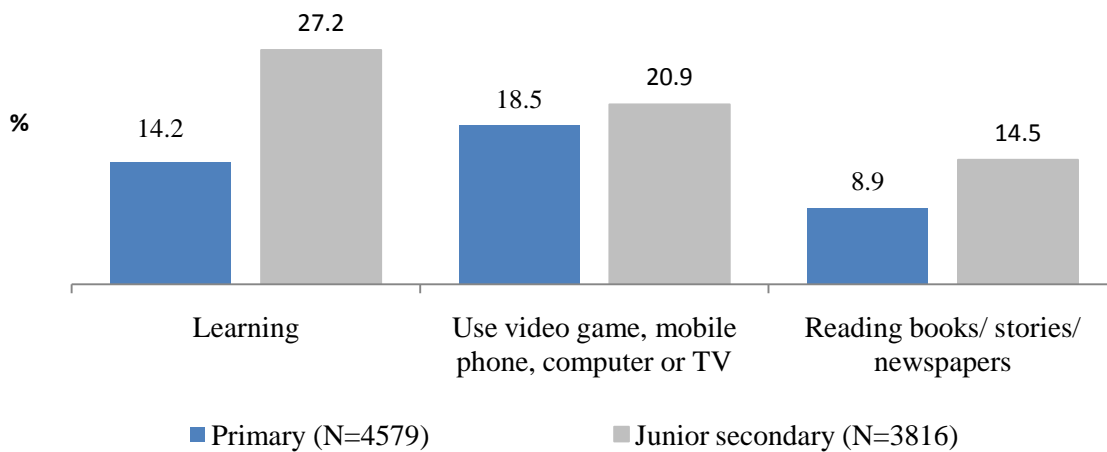


Table 2: Proportion of Students usually feel headache/ eyestrain but NOT telling their Parents

	Cities				Region				
	Hanoi	HCM	N	p-value	Inner-city	Outskirt	Total	N	P-value
Students									
Primary	23.5%	31.0%	1337	p<0.05	29.8%	24.2%	27.4%	1337	p<0.05
Junior secondary	28.4%	28.4%	3261	NS	31.2%	26.1%	28.4%	3261	p<0.05
Parents									
Primary	37.3%	38.1%	846	NS	36.8%	38.7%	37.7%	846	NS
Junior secondary	21.4%	20.1%	1248	NS	18.6%	23.1%	20.8%	1248	p<0.05

Note: Regular eyestrain after any 1 in 3 activities: studying, playing electric game/ watching TV, reading book/paper/ comic story.

NS: not significant

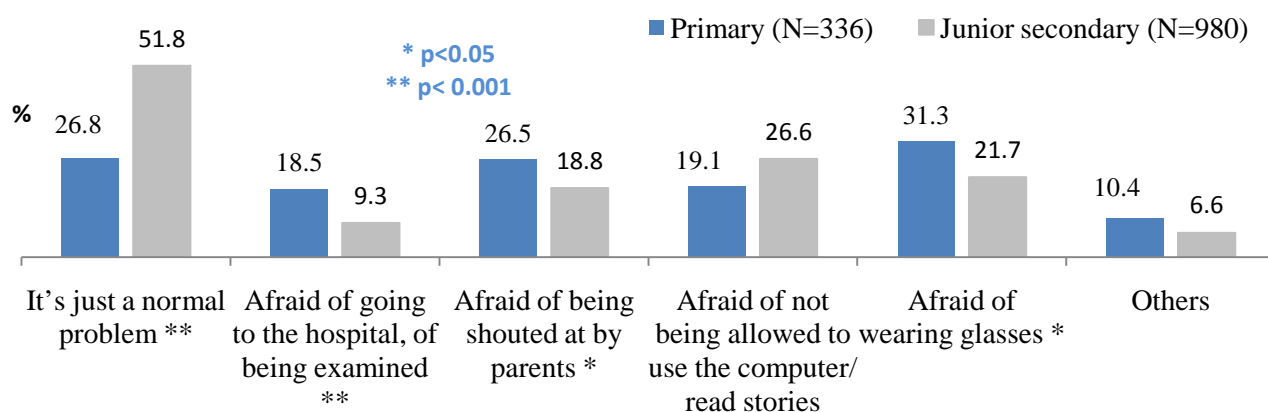
3. Why do students not tell their parents about their visual problems?

In the junior secondary school students surveyed, 51.8% thought that headaches, eyestrain, eye pain or blurred vision were a normal symptoms, 26.6% say that they were afraid that their parents would not allow them to play computer games or read comic books; 21.7% were afraid of having to wear glasses. (Figure 14)

For primary school students, 31.3% were afraid of wearing glasses, 26.5% were concerned about their parents’ action and 26.8% thought their symptoms were normal.

There were a small number of students who were afraid of going to hospital, precisely 9.3% of junior secondary students and 18.5% of primary school students.

Figure 14: Reasons why students may not inform their parents about their symptoms



4. If Students have a visual problem, who will they talk to?

Qualitative interviews with primary school and junior secondary school students indicated that if they had a visual problem when looking at the board or studying, their parents were the first people they would inform. If the symptom/s occurred for a long time, the junior secondary students would inform their head teachers of the class and move to a seat nearer to the board. For primary students, they were too scared to tell their teachers about it. No interviewed students had the intention of informing a school nurse. The FHF program should pay attention to this fact.

5. When parents are informed by their children, what would they do?

Seventy percent parents of primary school students and 80% parents of junior secondary school students brought their children to a health facilities for eye checks, with public hospitals being the main choice. The most concerning fact is that one out of five parents does not do anything after being informed of their child's visual problems (Primary: 23.1%, Junior secondary: 20.3%). The reasons given include: (1) 42.8% think that it's normal; (2) 40% are too busy; (3) 13.2% think that the medical expense is too high; and (4) 6.7% say the hospital is too far away.

Figure 15: Proportion of parents taking children to eye care services after being informed of child visual problem

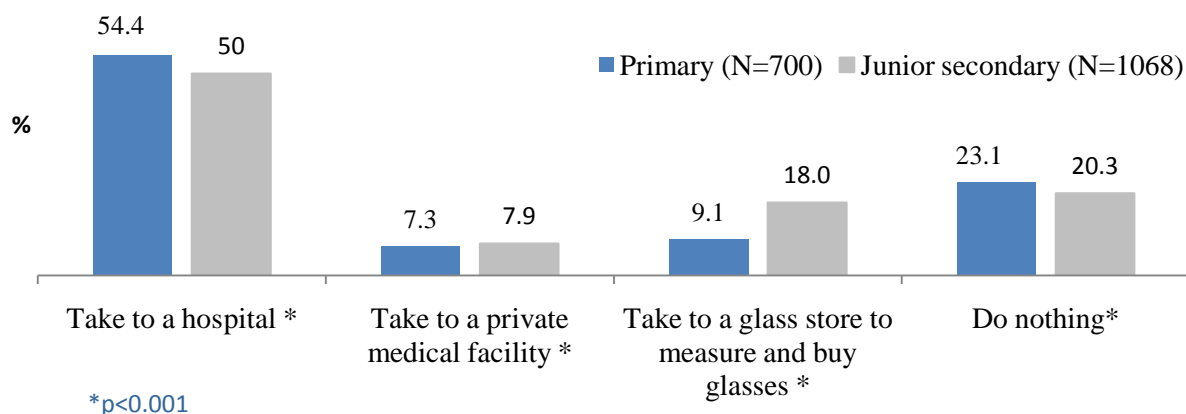
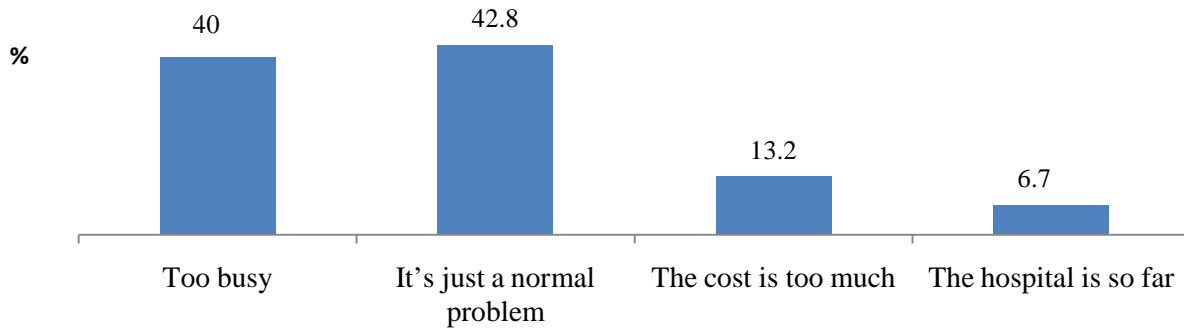


Figure 16: Reason for parents not doing anything when being informed of child visual problem (N=327)



Although 65% parents said that they considered it necessary to take their child to a doctor when children have headache or eyestrain after class (Figure 12), 19% of them actually do nothing when their children reported visual problem to them. The given reasons include: they thought it is normal (39.8%) or they are too busy with work (44.1%) or the eye check is too expensive (13.4%) (Figure 17 & 18).

Figure 17: Percentage of parents take child to eye care among those with good awareness (N = 1127)

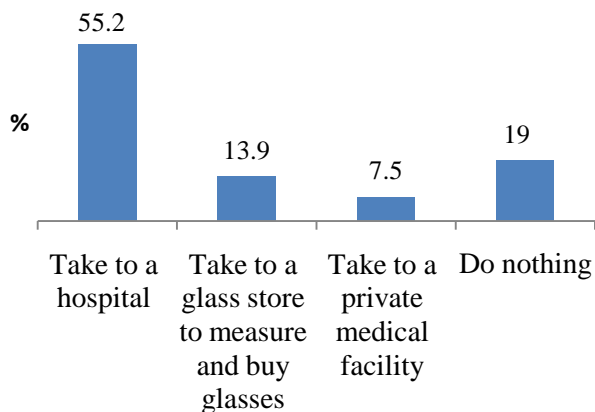
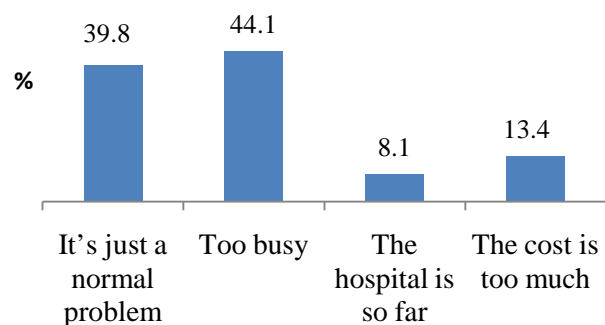


Figure 18: Reasons for not taking child to eye care although they thought it is important (N = 186)



6. To what extent, parents care about their children's visual problems?

When being asked “Have you ever asked your children if they have any problems when looking at the board?”, there were 13.1% parents of primary school students and 18% parents of secondary school students said they had never asked their children about this since they began school. 10.4% and 15.3% parents never notice whether their children shrink their eyes or have any unusual behavior while watching TV or looking at something in a far distance.(Table 3).There were no statistical differences on this rate when comparing between the 2 cities) (Annex 1.8).

When answering the question “How long does your child spend on the following activities?”, three out of ten said they did not know if their children played internet games or not (34%), specifically 46% of parents of primary students and 25.7% of parents of junior secondary students. This proportion in Hanoi was 3% higher than in HCMC and in inner-city areas was 9% lower than in that in the outskirts. (Annex 1.9) For reading books under blurred light and

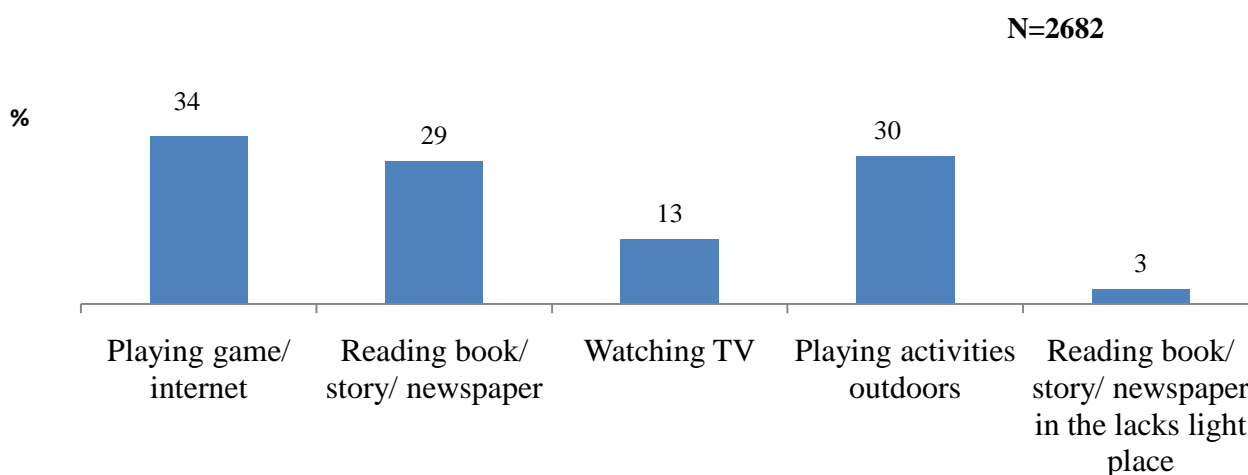
watching TV, 3% of parents said they did not know how much of time their children spent on those activities (Figure 19).

Table 4 shows the hours that a student with visual problems¹ spends on internet games or watching TV and we can observe that the time reported by children is always higher than that reported by their parents ($p < 0.05$). However, there was no difference in the average hours spent on those activities between students with glasses and those without glasses. (Table 5)

Table 3: Proportion of Parents who DON'T ask about or observe children's visual problems

	Inner-city	Outskirt	Both	N	p-value
% Parents DON'T ask their children if they having problems while looking at the board					
Primary	11.5%	15%	13.1%	1152	P>0.05
Junior secondary	14.8%	21.4%	18%	1447	P<0.05
% Parents DON'T observe their children while they watch TV/ see in a far distance					
Primary	9.4%	11.6%	10.4%	1153	P>0.05
Junior secondary	12.6%	18%	15.3%	1438	P<0.05

Figure 19: Proportion of parents who do not know child time spending in studying, playing games, reading comic books



¹ Only the student group having eye problem (have wore glasses because had been identified of occurring RE and regularly felt eyestrains, headaches when studying, reading books, watching TV and playing electric games) received survey form for parents to fill in.

Table 4: Average hours child spending on activities: comparison of reports by children and their parents

	N	Students'		Parents'	
		Average hours/week	95% CI	Average hours/week	95% CI
Playing internet game*	1063	6.7	[6.3 – 7.4]	5.5	[5.0 – 6]
Reading books	1101	8.8	[8 – 9.6]	7.5	[6.9 – 8.1]
Watching TV*	1291	18.5	[17.6 – 19.4]	15.6	[14.8 – 16.3]
Playing outdoor game*	1042	10.6	[9.8 – 11.4]	8.7	[8.1 – 9.3]

* p<0.05

Table 5: Average hours child spending on activities: comparison of reports by students with and without glasses

	With glasses			Without glasses		
	N	Average hours/week	95% CI	N	Average hours/week	95% CI
Playing internet game	1050	7.2	[6.5 – 7.9]	2646	6.5	[6 – 6.9]
Reading books	1059	8.2	[7.5 - 9]	2678	7.5	[7 – 7.9]
Watching TV	1073	17.7	[16.7 – 18.7]	2724	18.8	[18.2 – 19.5]
Playing outdoor game	1042	10.1	[9.3 - 10.8]	2670	10	[9.5 – 10.6]

In semi-structured interviews, the researchers found out that parents often brought their children to doctors when the head teacher informed them about their child's visual problems, and then followed the doctor's prescription. Some parents *did* take action when they received notices from the school or from their children, but some do not. Most gave reasons of financial issues or lack of time. "There are around twenty students wearing glasses, but some having visual problems don't wear glasses because of poor living conditions, or the poor care by their families. My teacher reminded them already that students who have visual problems have to ask their parents to have them checked. However, some parents don't like their children wearing glasses, or some don't care. If their children are not sick, they will not worry." (Nam, father of 8 grade student, Hanoi)

7. Proportion of students receiving eye checks

Among interviewed junior secondary students, 52.4% of students had never been brought to the doctor. The reasons given included (1) they think their eyes have no problem (71%) and (2) their parents are too busy (12.7%).

Among secondary students with frequent eyestrain, 45.5% of them had never been taken to eye care services by their parents (Hanoi: 41.7%, HCMC: 49.7% with $p < 0.05$). This percentage was 12% higher in outskirts areas compared to inner-city areas ($p < 0.001$) (Annex 1.12).

Figure 20: Proportion of junior secondary students brought to eye check by parents (N=3833)

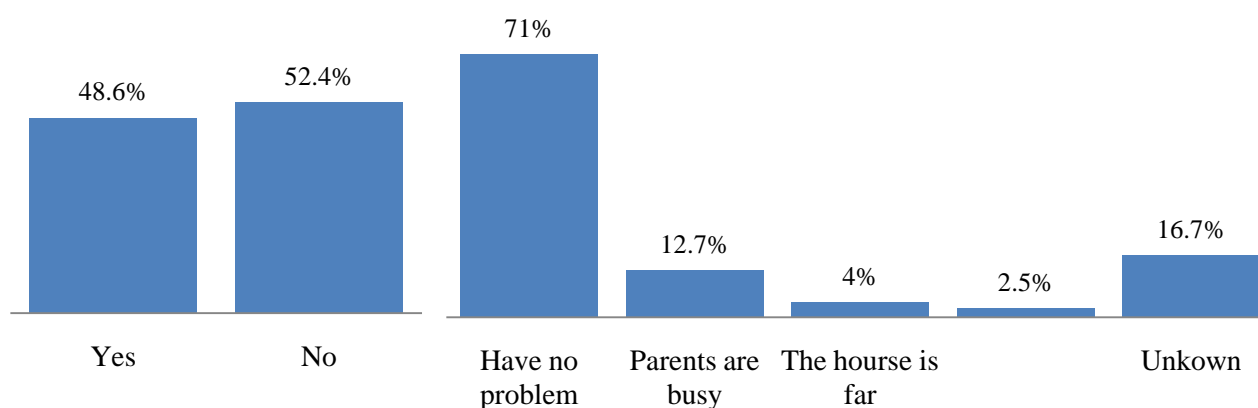


Figure 21: Reason for not being checked, reported by students (N=1781)

Obstacles in using glasses

1. Do parents advise their children to wear glasses?

When students have refractive error and wear glasses, 59.7% of primary parents encourage their children to wear glasses and 44.9% usually remind their child to do eye exercises. For parents of junior secondary school students, the percentages of parent encouraging glasses use were 53.6% and 57.2% respectively.

When being interviewed directly, some parents expressed that they did not want their children to wear glasses as they thought they would be inconvenienced by them. *“Wearing glasses is so inconvenient, especially when bathing, sleeping and eating. They make people look like a dog with four eyes. It’s too difficult to travel in the rain. When it’s too sunny, sweating heavily is so annoying. When going outside, if you wear both a mask and glasses, the glasses will be so blurred that you can’t see anything. If you are looking for an employee, you do not want to hire one wearing glasses. It’s so annoying to look at him. It can be acceptable for those with glasses to work at the office but it’s not for those whose jobs are blue-collar workers...”* (Parents of a 1st grader in Hanoi).

Table 6: Proportion of parents who encourage their children to wear glasses

	Encourage wearing glasses (%)			Remind of practicing eyes (%)		
	N	P	%	N	P	%
Level						
Primary	457		59.7	457		44.9
Junior secondary	1073	p< 0.05	53.6	1077	p< 0.001	57.2
City						
Hanoi	760		48.6	764		68.1
Ho Chi Minh	770	p< 0.001	62.1	770	p<0.001	39.1
Region						
Inner-city	957		55.4	955		51.1
Outskirt	573	NS	55.5	579	p< 0.05	57.5

2. How many students still have eyestrain after wearing glasses?

Among students wearing glasses, 30% say that they still have eyestrain/eye pain/headache when wearing glasses (primary students 26.8% and junior secondary students 31.5%).

Table 7: Proportion of students with eye pain/eyestrain/headache when wearing glasses

	N	Yes	No	p
Level				
Primary	456	26.8%	73.2%	
Junior secondary	1077	31.5%	68.5%	NS
City				
Hanoi	762	32.7%	67.3%	
Ho Chi Minh	771	27.5%	72.5%	p< 0.05
Region				
Inner-city	958	29.8%	70.2%	
Outskirt	575	30.6%	69.4%	NS

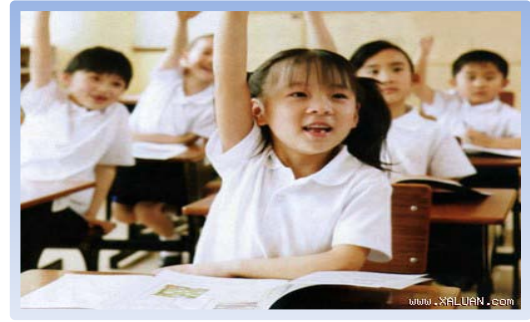
3. To what extent, children use glasses in daily activities?

Children wear glasses mostly when studying (about 80% with Primary: 89% and Junior secondary: 86.1%). Students are less likely to wear glasses at home, while playing games and watching television. While participating in outdoor activities, only one-third of secondary students and two-fifth primary students wore glasses.

Table 8: Proportion of students who usually wear glasses in their daily activities

Activities	Primary school (N=462)		Junior secondary school (N=1073)	
	N	%	N	%
Studying at school	411	89	926	86.1
Studying at home	373	81.2	669	62.4
Playing game	324	70.7	658	61.6
Reading books	331	72.3	585	54.5
Playing outdoor activities	186	41	333	31.1

Chapter 4: Influencing factors to decision making in eye care service use

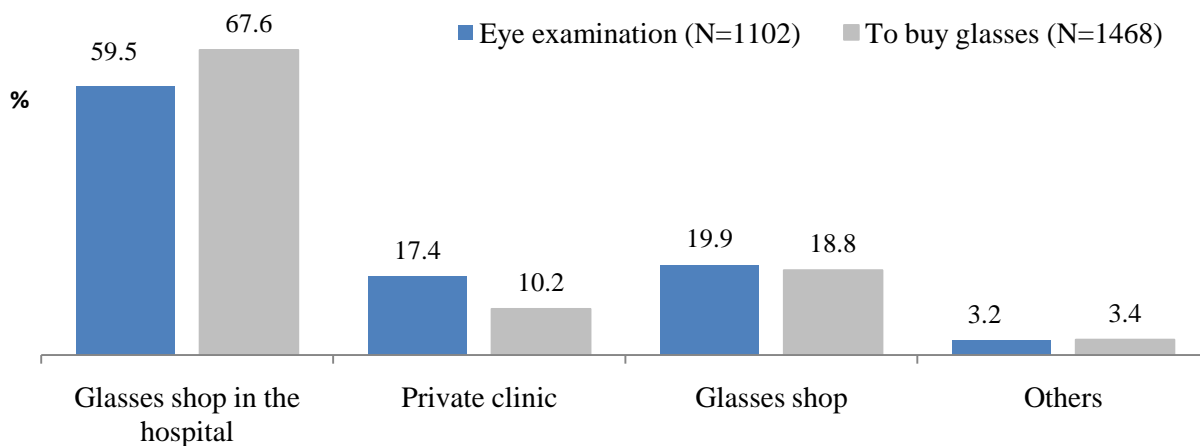


1. Which eye care services do parents trust?

When students have refractive error, nearly 60% of parents considered hospitals to be a trust worthy place of care, 19.9% selected the glasses shop as a place for eye tests (Figure 22). Usually they bought glasses at the shop where they took an eye test. 67.6% choose glasses shops inside the hospital, 18.8% choose private glasses shops outside the hospital. These results are consistent with findings from semi-structured interviews with parents.

The service they visit must be convenient, have short waiting times and good attitudes of the health workers. One says that “It takes a lot of time to wait for eye check; we have to go to work so we prefer the private services. They have better and faster service.” *“The service for those using insurance card is very badly-equipped and unpleasant, annoying.”* (Father of a primary student at Hoang Mai District, Hanoi). Regarding the quality *“They all have same service. I am not sure if health worker performance of eye check met standard quality”* (A mother of a junior secondary student in Hanoi). Some families brought their children to private services then have another re-check at a public service. If the results of two place are the same, they would be happy with the quality of the private service and select the private service for the next re-check. *“It’s good to have eye check at hospital but they have red tape, it is waste of time. It’s quicker in a private center which we have verified.”* (A female Parents of a primary school student in Hanoi).

Figure 22: Types of eye care services selected by parents



2. What are criteria for students and their parents to choose glasses?

The three most important criteria given were appropriateness to eye problem, being recommended by a doctor and good quality (Figure 23).

Regarding design, 51.7% of primary and 69.5% of junior secondary school students chose square lenses. Only 8.1% junior secondary students chose round lenses. Over 30% of primary and junior secondary school students preferred slender frames. Regarding color, 39.8% of junior secondary school students liked dark colors while 30.2% of primary school students liked light colors (Figure 24).

In qualitative interviews, parents said quality was the primary concern, and price was the second. Some students do care about the glasses' quality. They say that glasses must help them see clearly and then they care about design.

Figure 23: Preference criteria of glasses

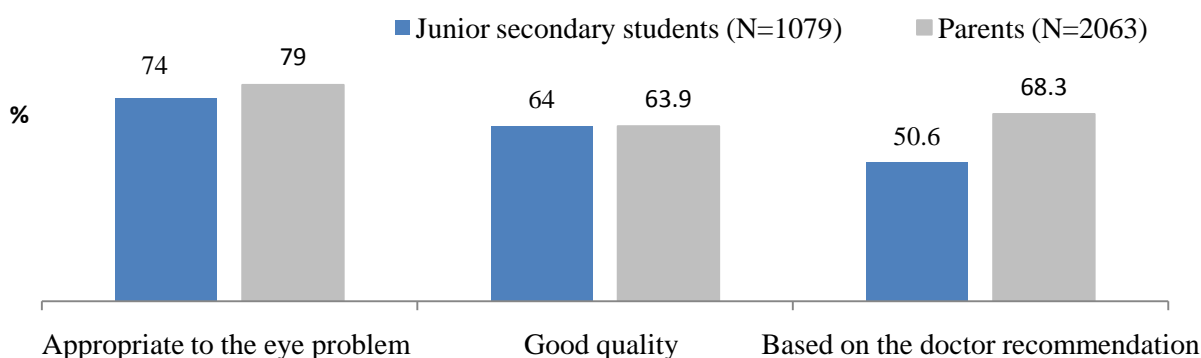
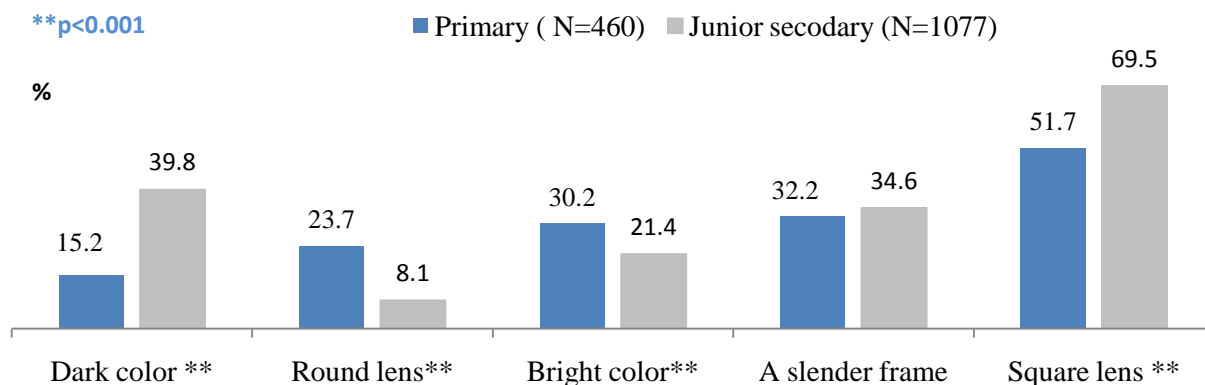


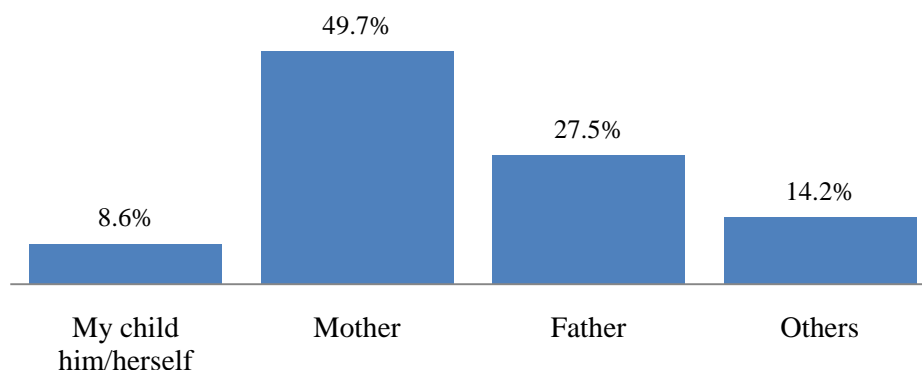
Figure 24: The most preferred styles of glasses by students



3. Who are decision makers?

The decision maker is usually the mother (49.7%). Vietnamese women are usually the finance managers of the family and the ones who make most of the decisions regarding health issues for family members. Therefore, upcoming communication and education on refractive error prevention, early detection and care should focus on this influential group.

Figure 25: Who decides whether buy glasses for students (N= 2402)



4. What is average acceptable price?

The average price that parents could afford for a pair of glasses was around VND 450,000 (exchange rate: USD 1 = VND 20,000). The lowest price stated was VND 20,000 and the highest was VND 20,000,000 (contact lenses). There was no statistically significant difference between primary and junior secondary students, Hanoi and HCMC, and inner-city and the outskirts. The quintile analysis indicated that 5% of parents can accept a cost of 100,000 VND only, 10% can pay up to 170,000 VND and 25% could afford 200,000 VND. Of the highest quintile group, top 25% parents can accept 500,000 VND and top 5% parents are willing to pay up to 1,000,000 VND per pair of glasses.

Comments from some parents about what an affordable price for a pair of glasses are summarized below:

"We do not care much about the price. As long as they are good for my child's health, then we buy. But what we are worried whether they are actually good". (A mother of a junior secondary student in Hanoi).

"I can afford up to 500,000 VND. That is the ceiling price because there are many other expenses to be concerned about. That is the price for average quality - if they are brand name glasses the price would be much more expensive I guess." (Mother of a primary boy, Hanoi)

"I want to buy a good pair for my son. The latest pair I bought cost 350,000 VND" (Mother of a secondary student, HCMC)

Table 9: Price acceptance by Parents for a pair of glasses

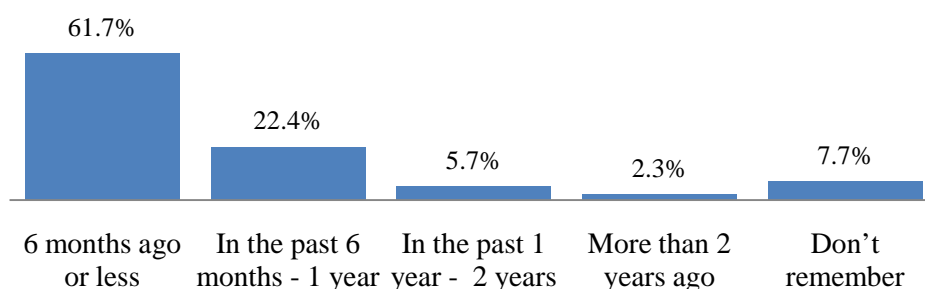
Acceptable price by quintile	Amount (VND)		
	Min	Max	
Lowest - 5%	100000	20000	N/A
Low - 10%	170000	30000	N/A
Low - 25%	200000	30000	N/A
Median - 50%	400000		
High - 25%	500000	N/A	3000000
High - 10%	800000	N/A	4000000
Top - 5%	1000000	N/A	6200000
Average of acceptable price	445000	20000	20000000

	N	Mean	Std. Err.	95% CI	
Region					
Inner city	902	425000	11760	402421	448585
Outskirt	812	468000	26343	416695	520112
City					
Hanoi	953	431000	10007	411734	451012
HCMC	761	463000	28775	407439	520416
Level					
Primary	680	435000	15503	404665	465544
Junior secondary	1043	452000	20560	411646	492335
Job					
Officer	387	470000	16186	438230	501878
Worker	429	427000	20235	387257	466802
Businessman/ Services	463	500000	44664	411438	586978
Farmer	146	373000	22531	328680	417744
Unstable job person	68	367000	26542	314667	420627
Retirement/unemployment	177	400000	17180	369193	437004
Don't let child wear glasses because financial problems	17	220000	37227	142151	300201

5. How common were periodic eye-checks?

When answering “How recently did you take your child for eye examination?” 61.7% said it happened 6 months ago or less. According to Ministry of Health, people with glasses should go for eye checks at least once a year. Therefore, 15% parents could be considered not to pay enough attention to their children’s eyes checks and the glasses’ quality/ suitability.

Figure 26: The latest eyes check (N=1102)



Chapter 5: User comments on FHF-funded free glasses



All 139 primary and junior secondary students in 8 schools who received free glasses by FHF program were given form A/B and part 4. Lists of students who received free glasses in previous years was provided by Hanoi Eye Hospital and cross-checked with the head teacher of the class to identify the correct student. The results analyzed from 139 forms, are presented below.

1. Do children like glasses from the program?

Amongst the 139 students who completed the form, 66% of students liked the FHF-funded glasses and 75% students used them. 25% students received free glasses but did not use them due to following reasons: do not like the glasses' shape (57%), do not like glasses frame color (34.3%), do not fit students' eyesight 34% (they felt dizzy and not clear when wearing glasses) and 20% students received glasses thought that the glasses were not fashionable. Out of the 75% of all recipients who used the glasses (102 students), the proportion that reported using the glasses frequently was 44%. The rest used them sometimes.

Figure 27: Percentage of students like and use glasses of the FHF program

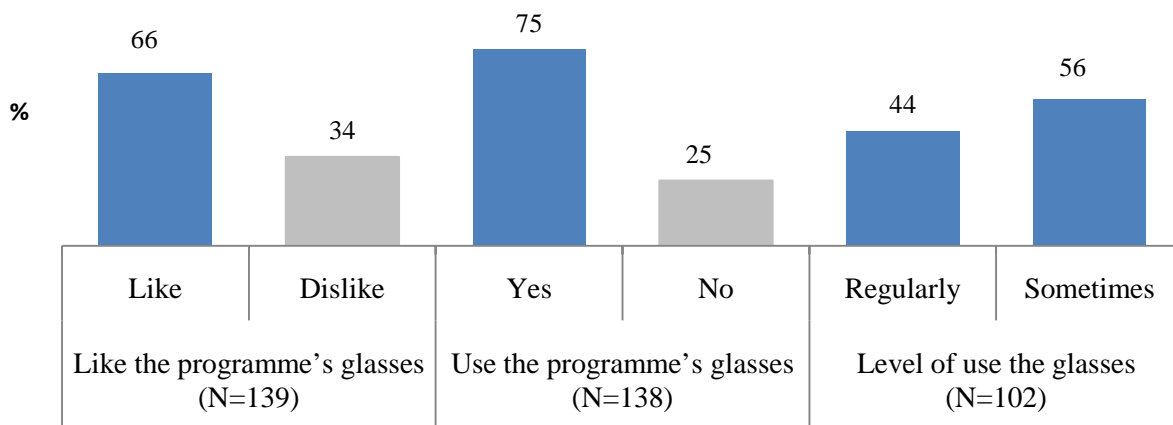
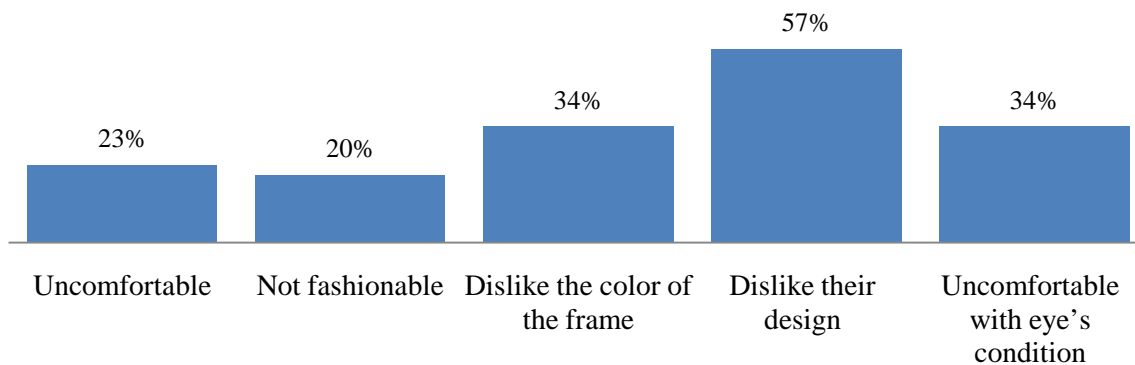


Figure 28: Reason for not using the program glasses (N=35)



2. What do parents think about glasses provided by the program?

There were 114 parents who responded to the questionnaire. Most of them expressed that the program was practical, useful and were grateful for. However, there were still some minor comments that the glasses quality was not very good, the appearance of the glasses was not very nice, the glasses did not fit eyesight needs and that the frames were weak and easy to break. Below summarizes some opinions reported by parents when asked “what are your comments of the free glasses program?”.

“Eye checks and free glasses provided by the programs are useful because they help many students who are poor and cannot afford an eye check at hospital.”

“Sincere thanks to the program because not all parents have enough money to buy glasses or change lenses. Health workers at the eye clinics often don’t guarantee the status of frames usable after changing lenses because his frame is not good and easy to break. The free eyes program can consult students’ preference.”

“The program is interesting, practical but it needs to pay attention in glasses’ style in order to make students feel comfortable, self confident. If the program can do this, it will be more successful and avoid wasting money because some students don’t use these glasses after receiving them.”

“I hope the program checks students’ eyes more frequently. We also thank the program very much because of free provision of glasses.”

“Quality of glasses is good, appropriate to his eyesight problems. After wearing glasses, he feels comfortable.”

“Lenses are not appropriate to her eyes, frames are thin.”

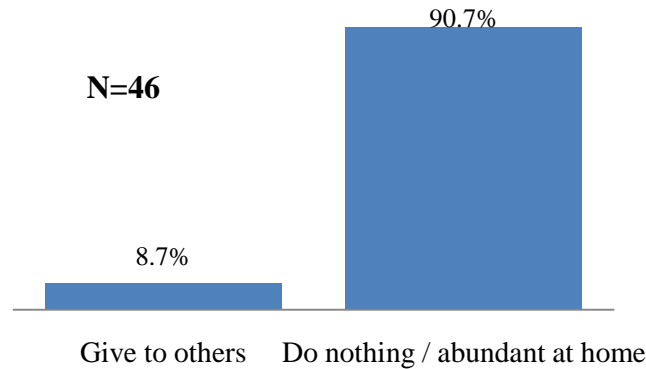
“The style of the glasses in the free glasses program did not fit her wishes and now she doesn’t use the glasses because her eyes are worse. Apart from these problems, the program is very good.”

“Glasses’ quality is acceptable, but style is not appropriate to students’ age.”

3. What did Parents and Students do with the free glasses if they did not use?

According to parents, 90.7% parents having children received free glasses but did not use them. They did however still keep the glasses at home in case they needed to use it. 8.7% gave the glasses to other people (Figure 29).

Figure 29: Parents' action with glasses issued by the program when students do not use them



4. Did glasses issued by the program fit with refractive error level of students?

When asked “Are the program glasses suitable to his/her level of refractive error?”, 80.2% of Parents said Yes (Figure 30).

About 15.9% of students feel comfortable, and have clear vision when wearing glasses. This is more the case in Hanoi than that in HCMC (18.6% and 13.9%, respectively). This percentage is also different between primary and junior secondary students (22.6% vs. 14%) but not statistically significant ($p > 0.05$).

Figure 30: Percentage parents thought the program lenses fit with child visual problems (N=139)

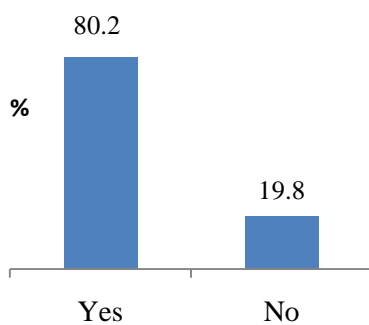
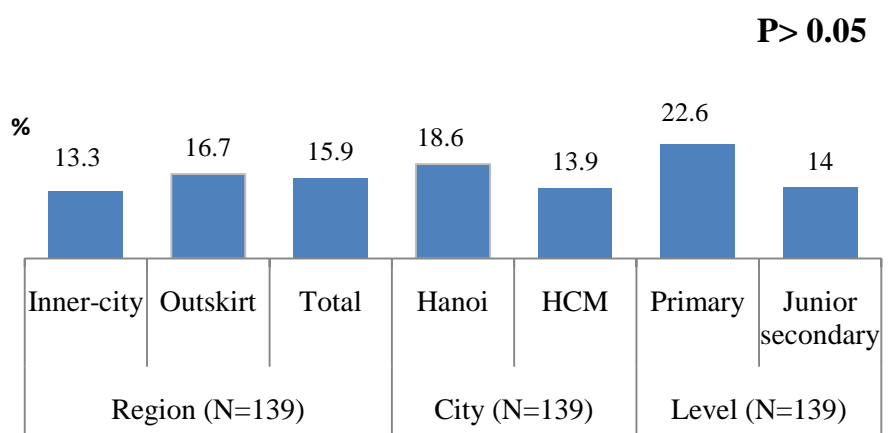


Figure 31: Percentage students not feeling comfortable and having clear vision when wearing glasses of the program.





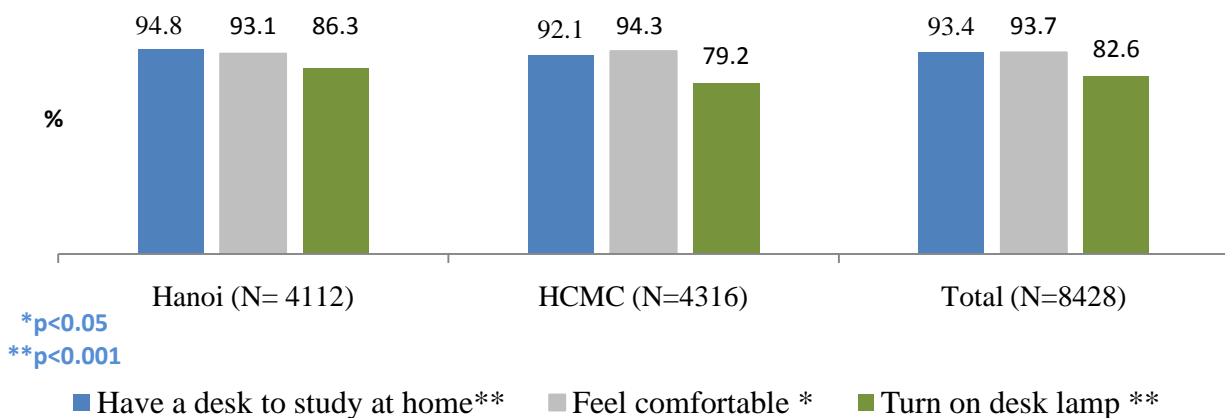
Chapter 6: Habitual behaviors of students may impact their eyesight

1. What are student study conditions at home?

There is no statistical significance between inner-city and city outskirts areas in regards to the percentage of students having their own studying desk at home, feeling comfortable at their study table, and having the lamp turned on during study ($p > 0.05$) (Annex 1.10).

In contrast, there is a statistical significant difference between Hanoi and HCMC in regards to these three indicators. The percentage of students with their own study desk at home and having the lamp turned on during studying in Hanoi is higher than that in HCMC with $p < 0.05$ (Figure 32).

Figure 32: Percentage of students having studying desk and desk lamp, feeling comfortable at desk



When being asked about study conditions such as “do you have a desk to study at home?”, 92.9% of primary students said “Yes”, which was slightly fewer than junior secondary students (94%). With the question “do you feel comfortable when studying at your home desk?” and “do you turn on your desk lamp when studying”, generally the percentage of primary school students that said “Yes” was higher than that of junior secondary school students (Figure 33). This might indicate that desks set ups may not be suitable for secondary students’ height. Their parents may need to consider this issue.

With students who used glasses, the percentage of those who had a study desk at home was quite high (over 95%) and higher than for who do not use glasses (93%). The percentage of students in “do not use glasses” group that said that they felt comfortable when studying at home was 94.2%, higher than for the “using glasses” group (Figure 34). All differences were statistically significant.

Figure 33: Student study conditions at home

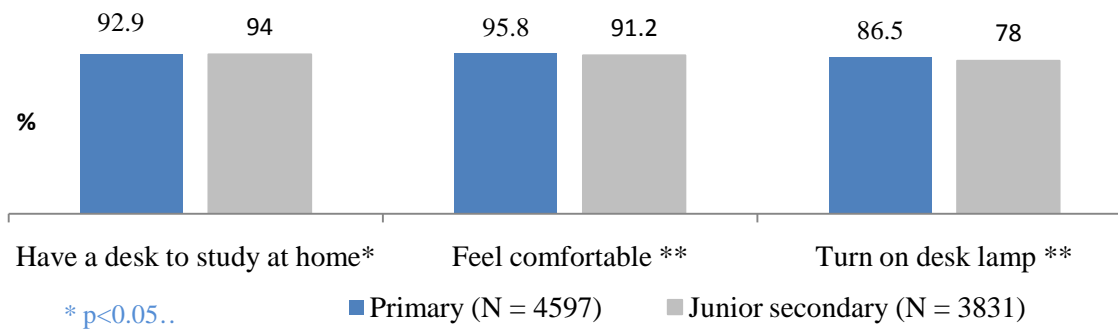
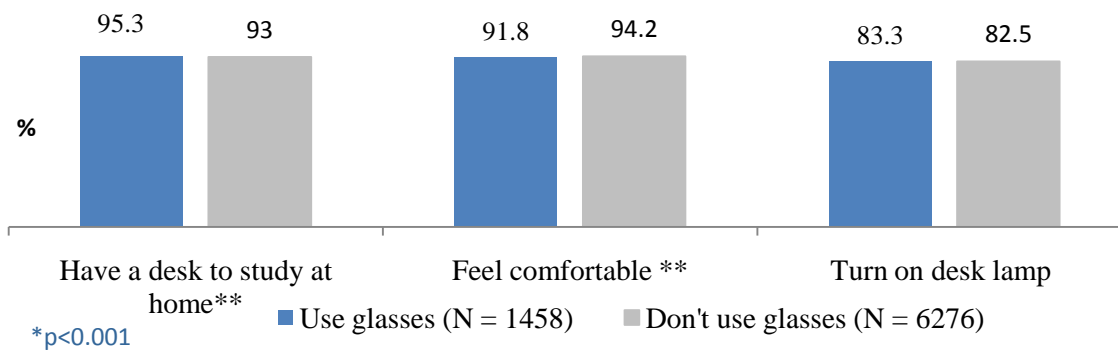


Figure 34: Study conditions at home: comparison between those who use and do not use glasses



Percentage of students having study desks differs increasingly across grades, the lowest is the first grade with 91.5%, while the fifth grade is the highest 95.1%. The difference is statistically significant ($p < 0.05$). 94.5% of the first grade reported of feeling comfortable when sitting at their desk at home. This rate increases gradually to the fifth grade (95.4%), then decreases to the ninth grade which is only 87.5%. The percentage of students that often read books/magazines/comic in near-darkness or an area with dim light increases across grades, from 2.9% in the first grade up to 6.1% in the ninth grade. These differences above are statistically significant ($p < 0.001$).

Table 10: Study conditions at home by grade

Condition		Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9
Have a desk to study*	Yes	91.5	92.5	91.6	94	95.1	93.6	93.2	94.8	94.7
	No	8.5	7.5	8.4	6	4.9	6.4	6.8	5.2	5.3
Feel comfortable**	Yes	94.5	94.5	97	97.5	95.4	93.5	92.8	90.8	87.5
	No	5.5	5.5	3	2.5	4.6	6.5	7.2	8.2	12.5
Turn on desk lamp**	Yes	83.8	85.4	86.4	91.5	84.8	82.5	79.2	74.6	75.5
	No	16.2	14.6	13.6	18.5	15.2	17.5	20.8	25.4	24.5
Usually read in the lacks light place **	Yes	2.9	3.1	3.7	2.8	2.1	2.4	4.3	5.2	6.1
	No	97.1	96.9	96.3	97.2	97.9	97.6	95.7	94.8	93.9

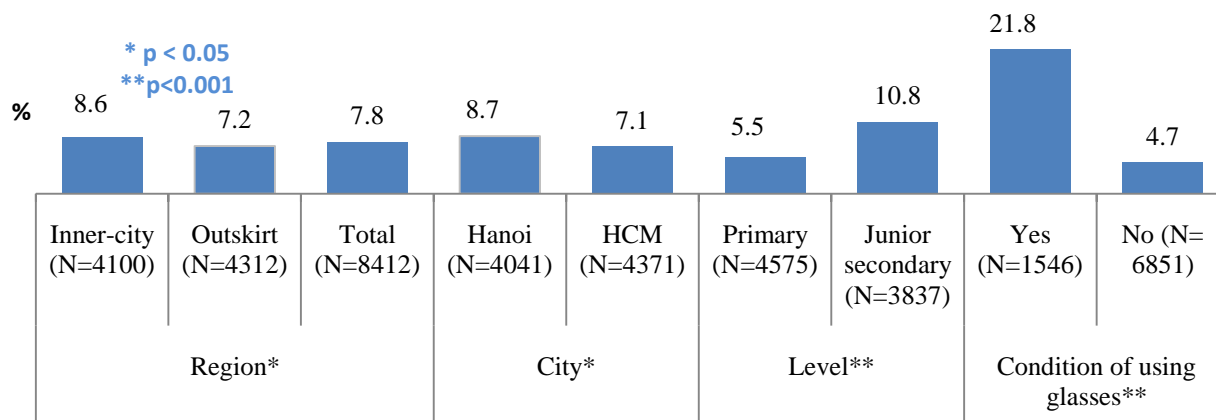
*p<0.05**p<0.001

2. Percentage of students not seeing letters on board clearly

From the seat in the class, the percentage of students who could not clearly see the letters on the board was 7.8%. Specifically, the percentage in inner-city areas (8.6%) is higher than that in outskirts areas (7.2%). Between primary and junior secondary school students, this percentage is also clearly different (5.5% primary and 10.8% junior secondary) ($p < 0.001$).

Of those who currently use glasses, there were still 21.8% of students said that they could not see letters clearly on the board from their seats, much higher than that in the non-glasses student group 4.7% ($p < 0.05$) (Figure 35).

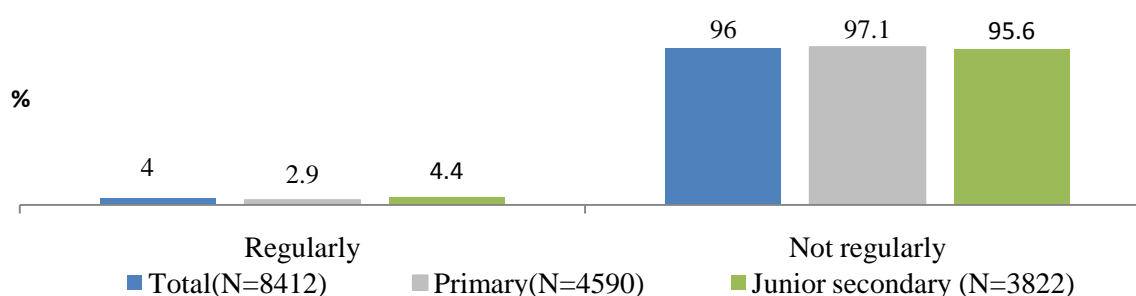
Figure 35: Percentage of students do not clearly see letters on board from their seats in class



3. Percentage of students reading books/newspaper/story in darkness or dim light

The percentage of students who usually read books/newspaper/stories in near-darkness and places lacking light was quite low. At primary school level, this percentage was 2.9% and with junior secondary is 4.4%. The difference was meaningful statistically with $p < 0.001$ (Figure 36). However, the rates are not statistically significant between inner city vs. outskirts and Hanoi vs. HCMC (Annex 1.11).

Figure 36: Percentage of students reading books/newspaper/story in dim light



4. How do students arrange their time for activities?

The time students spend on game/internet was more likely to increase across grades. On average, sixth grade students spend 4.9 hours per week playing games or on the internet, while seventh grade students spend 6.7 hours per week, and students in the eighth grade was the highest with 7.9 hours per week but the ninth grade decreases to 7.3 hours per week ($p < 0.05$). In contrast, time spent for reading books/magazines/comics had a significant downward trend between the sixth and seventh grade. The sixth grade spends average 8.6 hours per week for these activities, and this reduced to only 6.8 hours per week among the seventh grade students ($p < 0.05$).

There is no statistical significance among grades in regards to percentages of time spent watching television and percentage of time playing outdoors in a week.

Table 11: Average hours spending on activities per week across grades

Activities	Grade 6		Grade 7		Grade 8		Grade 9	
	TB	95%CI	TB	95%CI	TB	95%CI	TB	95%CI
Playing internet/game*	4.9	[4.3 - 5.7]	6.7	[6 - 7.5]	7.9	[7 - 8.8]	7.3	[6.6 - 8]
Reading book/story*	8.6	[7.6 - 9.5]	6.8	[6.1 - 7.5]	8.1	[7.3 - 8.9]	7.2	[6.6 - 7.9]
Watching TV	17	[15.8 - 18.1]	18.5	[17.3 - 19.6]	19	[17.9 - 20.1]	19.8	[18.8 - 20.7]
Playing outdoor	10	[9.1 - 10.9]	10.4	[9.4 - 11.4]	10.1	[9.3 - 10.9]	9.6	[8.8 - 10.5]

* $p < 0.05$

Chapter 7: School health system and refractive error prevention



1. Refractive error in students: increasing or decreasing?

In semi-structured interviews with parents and school teachers, all have said that nowadays, the rate of children with RE is increasing. *"I see too many students at health checks at the beginning of the school year - there's more than 50% of students with RE"* (a school nurse of a secondary school in District 9, Ho Chi Minh City) or another idea *"I see it's increasing. Formerly, a class had few students wearing glasses, but now, one third students of the class wear glasses. The rate is gradually going up"* (a vice principal of a primary school in District 9, Ho Chi Minh City).

Most parents and teachers thought that there were many reasons causing increase of RE in students, however they pointed out two main causes:

- Firstly, the learning posture is usually not right, the face bows very close to table when reading or writing. Students are not aware of what the right sitting posture is. Regarding teachers *"Although there are regulations on learning and pen holding postures, teachers are not strict - they care of teaching but not this problem"* (a teacher at Cu Chi District Education Department, Ho Chi Minh City), or regarding parents: *"I cannot monitor and remind him/her all the day, only remind for a while"* (an 8 grade male parent, Hanoi).
- Secondly, It was felt that the working time for eyes was too much. Nowadays, students have to learn 2 sessions per day, and then have to go the extra classes and do homework at night. Additionally, they are exposed to too much TV and computers so that the time spent focusing the eyes is too long. *"In the past, we learnt with a blurred oil lamp, but we had a lot of time for playing, resting and we didn't have electric games or mobile phone or extra classes, so our eyes had time for resting. Children nowadays are miserable. It's said that entering high school is losing childhood, but now, not yet entering high school, they lost childhood already"* (a head class teacher of a secondary school in HoanKiem District, Hanoi). Many ideas were given that RE occurs mainly because of reading comic books. *"This is the main reason for myopia. Small letters, disorderly jumping pictures, black and low-quality papers make eyes and brain strain for reading. When parents forbid it, children stealthily read under the staircase or table"* (a 6th grade parent in Hoang Mai District, Hanoi).

2. School health: priority issues?

The School Management Board (SMB) and school nurses expressed that the current main concerns of school health were still issues such as epidemic, food safety and first aid. Eye problems are not a priority. *“The first is food safety; the second is health, as I said before, is the problems of sickness and fever in students. Eye problems are really not paid much attention by school. Nothing has been done,”* (SMB, primary school in HoanKiem District, Hanoi).

Investment funding for school health is low, mainly extracted from 20% of student health insurance (80% of health insurance collected is paid to health insurance companies and 20% is kept by school for school-health related activities). From that total extracted amount, another 20% is allocated for paying health staff salary. Thus the input is not covered for the school health related expenditure.

3. School health: function and competency?

In semi-structured interviews, it was reported by health nurses that the main tasks of the school health nurse is providing first aid for fever, abdominal pain or mild injury cases, supervising school hygiene and sanitary, taking and storing food samples. Regarding infrastructure, the health care room was commonly small and the medicine cabinet was sparse, with just some analgesics, antipyretics, flu medicines and some first aid equipment. Most of teachers, SMB staff and school nurses commented that the school health is not efficient *“Concurrently, school healthcare is formalistic, almost doesn't have to serve, only treats for scratched arms and legs, headache, dizziness,”* (a head class teacher of secondary school in Soc Son District, Hanoi).

Regarding human resources, school health staff are almost all primary or secondary nurses. According to the comments of both SMB and health staff that *“expertise is not updated regularly, professional training is not available, regular conducting and monitoring is not available, working alone, exclusively. If working in a hospital, there is regularly direct guidance and supervision from doctors. Working here we are on our own, without any supervision”* (a school nurse in a secondary school in Soc Son District, Hanoi). In addition, health staff often do a lot of different tasks such as checking the class hygiene, logistics work, accounting and administration.

4. Refractive error screening and preventive activities?

Schools often implement a general health check for students once a year. From this check, students with RE will be detected. In doing so, head class teachers inform the student's families to take them to hospital for examination. However, there's no document of the quality and efficacy levels of these activities. A head class teacher said that: *“This activity is done annually but only nominally. The main function is to write on the profile that the school is concern to the eye problems of students. Eye examination is formality. The eye hospital came for examination for hundreds of students only within a morning. Every student went out with result of 10/10, how to be exact?”* or *“The optometry board is available but formalistic, it's never brought to classes for checking eyes of students”* (a 7th grade head class teacher in a secondary school of HoanKiem District, Hanoi).

Besides, some inner-city schools in Hanoi administer eye medicine twice a week for their students with medicine bought by the schools. Students of upper classes tend to administer eye drops for students of lower classes. There's no answer or documented evidence about how these eye drops help the prevention of RE, but there appear to be big risks to the students' health as students administering medicine to each other incorrectly may lead to eye disease infection or poking to the eye causing injuries for eyes.

The communication and education activities are not commonly implemented, *"mainly through poster at the school gates, guiding the sitting posture. Flyers are almost not available at all. Sometimes, in epidemic seasons, the health staff pasted guidance papers of early detection for symptoms onto the class's window and corridors. They're just photocopied papers according to the direction of the Ministry"* (a vice principle teacher of a secondary school in HoanKiem District, Hanoi). Some schools have communication activities but the frequency is low, *"my school organizes periodic and by subject communication. One subject for each month. The specific subject for eyes is in October. The school conducts a communication session under the flag²"* (a health staff of a secondary school in District 9, Ho Chi Minh City).

Regarding infrastructure, schools in Hanoi are visited annually by the inspection team of the Department of Education to check the quality of light and learning desks. However, the results of the Department's assessment are not available. *"My classroom has many projects coming, gutters finishing, tubes coming, yellow lights finishing, electric saving lights coming, finally the room still deficits light. Although there's regulation on lighting from the Ministry, but it's only formality,"* (a 7th grade head class teacher in HoanKiem District, Hanoi).

Some people said that eye checks at school medical offices are too quick and untrustworthy. *"The role of the school medical office is very important however it has not been clear. At school there is periodical medical check for children but it's too simple, too quick. It includes only weighing, simple eye check like looking at a board of words. Maybe this is due to lack of funding, hence they cannot afford good equipment."* (Parents of a 5-grade female student in Hanoi) *"That simple and quick test is a waste of money and meaningless. It may be useful in urgent cases like stomached or bandaging a wound."* (Parents of an 8-grade male student in Hanoi)

² All students gathers in the school yard by classes, the speaker will talk via microphone for about 30 minutes. Topics varies in accordance to the Ministry guide dance or depending on epidemic situation.

5. Communication approaches

Teachers, SMB, school nurses and parents all agreed that there should have information education and communication (IEC) programs on eye care and RE prevention to parents and general population to understand the seriousness of childhood RE nowadays. However communication for whom and how to deliver it in an efficient way is still a concern.

Who should be the target of the IEC? For students, it should be organized in an attractive way so that students could come to realize the seriousness of RE and monitor themselves in their daily routine: sitting in the right posture, having resting time for eyes, reducing time for playing electric games and using computers. The majority of teachers and SMB said that IEC program should focus on parents because *“It has to change the parents’ thought and concerns about their children’s health. Currently, they only care about the academic scores, and nutrition. Few people think about their children’s eyes. Family is the main part, school is the small part. Students are at school for 6-8 hours. The rest time is mainly staying with family. Thus we should communicate strongly with parents who have children have just entered primary school”* (a vice principle teacher of a primary school in HoanKiem District, Hanoi) and parents of primary students should be the main focus because *“At that time, parents take care of their children more. When entering the secondary school, what the children do is their private work. Parents have no time to look after their children. Propaganda should be done from the primary school such as reminding parents to train their children the sitting posture, learning place, light. To the secondary school, it’s too late,”* (a head class teacher in HoanKiem District, Hanoi).

Regarding the form of communication, the schools often send a small paper of health check results, including vision problems, to parents. In addition, *“in parent meetings, we also mentioned briefly but did not know how much they care about”* (a health nurse in a secondary school in Cu Chi District, Ho Chi Minh City). In fact, many parents reported that at the parent-teacher meeting at the beginning of the academic year, the head teacher of the class only talked briefly in several sentences, reminding parents to care about child posture and eye sight. According to teachers, the IEC form such flyers are not very effective, *“Sometimes the district health centre sent some flyers which are generally rubbish... Currently, only posters and information on websites are alright. Don’t print that much, costly but much trash”* (a head class teacher in HoanKiem District, Hanoi) or *“Providing flyers, not sure whether they do read or not. Parents in this area are busy in trading and earning money more than in taking care of their children”* (a head class teacher in HoanKiem District, Hanoi).

Regarding the national programs, it was suggested by teachers and SMB that national programs should not do things by halves. They should not stop at screening examination but needs to conduct communication in order to disseminate knowledge so population are self-aware about the problem, thereby, can change behaviors to minimize the current RE situation.



Chapter 8: Results and Discussion

The number of students who have developed RE (myopia, astigmatism, hypermetropia) in recent years has increased in Vietnam from 2.5% in 2003 to 10% - 25% in 2007[1]. Some domestic studies show the RE rates amongst Vietnamese students are equivalent to that of China and Singapore, and higher than that of nations in other areas such as Nepal (<5%) and Chile (14.7% - 19%). This is the rationale for this research; to explore attitudes of parents, students and teachers about glasses use in children.

The study was conducted in 16 schools in 2 cities, Hanoi and Ho Chi Minh with the sample size of 8481 students and 2664 parents in 2011. The results showed that only 6% of parents answered that they wouldn't let their children wear glasses if recommended to by doctors, with the reason chosen most commonly being due to the inconvenience (41.9%). This number is much lower than the research result in a study in Adeoti in Nigeria, in which it was found that 51% of parents would not allow their children to use prescribed glasses, and 38% parents would not themselves use glasses if prescribed [7]. Although the rate of non-compliance to the doctor's prescription in Vietnam relating to eye problems is low, communication programs on RE about the safety of wearing glasses, the importance of early detection and periodic check-ups are necessary, especially for parents.

Amongst students wearing glasses, the rate of students disliking having to wear them was quite high in both primary and secondary students. This rate was more than 80%. The main reason given by secondary students was inconvenience, accounting for 46.4% and reasons given by primary students were ugliness, aesthetics and changing the eye's form, accounting for 32%. This is the main factor that the program of providing free glasses should consider when providing glasses for students. Although when being requested to define the 3 most important factors for decision of buying glasses, both parents and students emphasized in three criteria 'glasses are suitable with the eye condition' 79%, 'following doctor recommendation' 68.3% and 'good quality' 63.9%, actually, the result analysis showed that there may be up to 57% of students receiving free glasses that do not wear it because of not liking the form or color of the glasses. These issues are mostly related to appearance of the glasses. Students from inner city areas care particularly about this. Research in China also indicated that [6]rural children do not seem to be overly concerned with new styles or the appearance of glasses.

The study revealed that 59.5% of parents choose hospitals as the place to take their children for eye examination. However, this qualitative research result showed that almost all parents feel confused when choosing eye services because they don't know how to assess the quality of services. This indicates that the eye care system needs formal communication programs to help the general population better understand the eye care service system, especially the service of early detection and consulting for students.

The study analysis showed that the average cost of glasses accepted by parents is about 450,000 VND (from 20,000 VND - 20,000,000 VND), and there was no statistically significant difference between outskirts and inner areas of the cities or between Hanoi and HCMC.

Even when parents are willing to pay for buying glasses for their children, how do they know whether their children have eye problem to check the eyes and buy glasses, and do students use their glasses in daily activities? Nearly 30% of students that had the signs of eyestrain such as frequent headache/ eye pain/ eyestrain/ blurred vision after learning, game playing, book reading stated that they would not inform their parents about these signs. The main reason given by secondary school students is that this is a normal problem accounting for 51.8%, while primary school students said they didn't dare to tell their parents mostly because they were afraid of being made to wear glasses (31.3%). Qualitative interviews with students also demonstrated that students often persist with blurred vision until they cannot see some objects at all. Then they will tell their parents first, and next their head class teacher. These figures indicate that the eye programs need to improve the communication programs to enhance knowledge and confidence for students so that they can share their problems to parents and teachers.

How to prevent RE for Vietnamese students? This is a question that parents, head class teacher and school health staff all feel confused about. Most interviewed head class teachers and school health staff commented that current Vietnamese students lack time for eye to rest and high levels of work involving close focused vision. The learning pressure contributes only a part of the problem, with game playing /internet and lacking time for out-door playing being possible strong impact factors. This study found that the mean number of hours spent by Vietnamese students to play games, read stories/ books/ papers and watch TV is much higher than the average of Thai students aged 6-12 years old[8].

Average hours/ week	Vietnam students		Thailand students	
	Combined	Normal eyes	Myopia eyes	
Playing game/ internet	6.7 ± 0.2	2.0 ± 3.3	2.8 ± 4.0	
Reading stories/ books/ papers	8.6 ± 0.2	4.0 ± 4.7	5.9 ± 4.7	
Watching TV	18.5±0.3	8.1 ± 5.2	9.3 ± 6.7	

Most recent population-based studies from the USA, Australia and Singapore have documented an association between myopia and higher levels of work involving close focused vision among school children [9-11], this was identified as the main factor leading to RE. Increased hours spent on outdoor activities provided a protective factor for RE [12]. The study in Thailand found that children with normal eyesight have about 20 hours per week to play outdoors[8]. This figure is 10.6 hours for the Vietnamese students (combined of those with and without RE) surveyed in 16 schools. On average, students had only 1.5 hours per day to play outdoors, including both the time playing at home and at school. Head teachers and school health staff recommended to reduce students' learning workload and eliminate extra-classes. Also, they suggested removing daily exercise which is only a school formality; not valuable physical activity and use this time to increase the time for students to play outdoors and rest their eyes. Moreover, the available light factor in classrooms and homes also needs to be considered. Observation of the research team during data collections indicate that students usually sit to learn with their heads nodding near the tables, some schools had insufficient light, especially the schools inside street. The percentage of students feeling uncomfortable with their studying area at home increased across grades. Study desks at home may not

appropriate to their height, especially those at junior secondary school, and their parents may need to consider buying a new desk or adjusting the height for students.

Periodic re-examination and adjustment of glasses strength are the issues that need to be communicated to Vietnamese parents. The study results show that 15% of parents do not take their children to have their eyes re-checked and only 22.4% do take them within 6 - 12 months from the previous check-up. Uncorrected RE is the second cause of blindness after cataract, the main cause of low vision, and the overall cause of almost half the visual impairment in the world population according the recent WHO report[13]. Future IEC programs should pay more attention to this issue.

Overall, the situation of students wearing glasses has become common in Vietnam and the study by Erin and Koenig indicated that between 14% to 65% of students with visual impairments also had learning difficulties [14]. Vietnamese has a proverb “you are rich because you have two eyes, you are in difficulty because you lack of two hands” (in Vietnamese: giàu hai con mắt, khó hai bàn tay). Eyes are invaluable assets that need to be preserved. However, the activities of enhancing public awareness about preventing and early detection and coordinating among school, family and eye care service quality has not yet occurred. Within the scope of social research, this study efforts to explore problems and issues related to attitudes of parents, students and teachers and factor affecting decisions about eye care for students, as a base to build up communication and community intervention programs of FHF and other organizations working the field of vision and eye’s care.



Chapter 9:

Recommendations



Based on the research findings and literature review, the research team proposes the below recommendations for FHF programs:

1. Enhancing the community awareness of RE:

- At the community level: the programs should utilize the strengths of mass media (TV, radio and newspapers - particularly TV) and communicate strongly in the months preceding the beginning of the school year in order to attract the attention of parents.
- At schools: the programs should enhance the awareness of head class teachers to transfer messages to parents through 3 meetings/year, especially the meeting at the beginning of the school year. Information should be delivered to head class teachers through an official website and introduced to schools; papers about eyes care should be inserted to the training programs of living skills. Flyers are not recommended by head class teachers, parents and students because they are seen to be inefficient.

2. Targets of the IEC

- Communication activities should be focused on parents and head class teachers of primary education, especially the 1st and 2nd grades. Mothers should be the target as they have the main decision making role in taking their children to the eye examinations and buying glasses, as well as monitoring learning and playing time, and observing the learning posture of students at home.

3. Key communication messages:

For students who had wearing glasses

- It is necessary to help parents understand that wearing glasses does not increase RE in children. Their lack of this understanding is a significant barrier to the child glass use although it is prescribed.
- IEC messages should focus on the importance of periodic eye examinations to adjust the lens. Parent should understand this importance clearly in order to have motivation for action.

For students without RE - target prevention: IEC to the general population should emphasize on the following messages to parents and schools.

- Increasing time for eye resting: parent and teachers should allow children to have more out-door play; less unnecessary learning time; and ensure adequate light when reading.
- Light at school and home: IEC messages should encourage parents to pay more attention to the home-based study desk, ensuring enough light for reading. Also

parents should be more concerned about the light available in classrooms and discuss this problem with schools.

- Parents should regularly ask about children's vision ability and eye problems, and guide children to exercise their eyes.
- Parents should adjust the home-based study desk to fit with their child's height.

4. Provision of free glasses:

- Glasses appearance should be given more attention to meet the needs of students.
- Free glasses should be provided only to poor students with RE. The research results in many countries show that free glasses provision regularly has low rate of frequent use (<20%).

In addition, the research team proposes some policy applications for the Ministry of Education and Training:

Increase time for eye resting in students:

- *Take the effort of extra-class elimination more seriously;* remove the policy of bonus score (if child attends non-obligated subjects) because this is the policy pushing students to attend many activities in order to increase the score for examination entrant to high school.
- *Increase outdoor playing time:* decrease daily exercises which is only a school formality, not valuable physical activity during the week and increase the volume of outdoor playing time.

5. **Regulation on class light:** the Regulation on national school standards needs to modify the indicator of class lighting 'airy classroom, enough light, safe'. This indicator must be measurable and be assessed more specifically by the supervision group of the Ministry and the Department.

6. **Supervising:** Department of Education should have the periodic and good supervision with the clear reward and punishments for schools that do not provide adequate light in classrooms

7. Recommendations for further research

- It is necessary to conduct further research to evaluate the effectiveness of IEC program in schools in order to find out the most optimal approach for different settings (city vs. rural) and different school ages (primary vs. secondary vs. high school).
- There is a need for formative studies to assess the current system of eye care services in Vietnam at city and provincial levels.
- It is vital to implement experimental research studies to measure the nature of work involving close focus of eyesight in order to recommend policy to a more appropriate studying and living schedule for students.

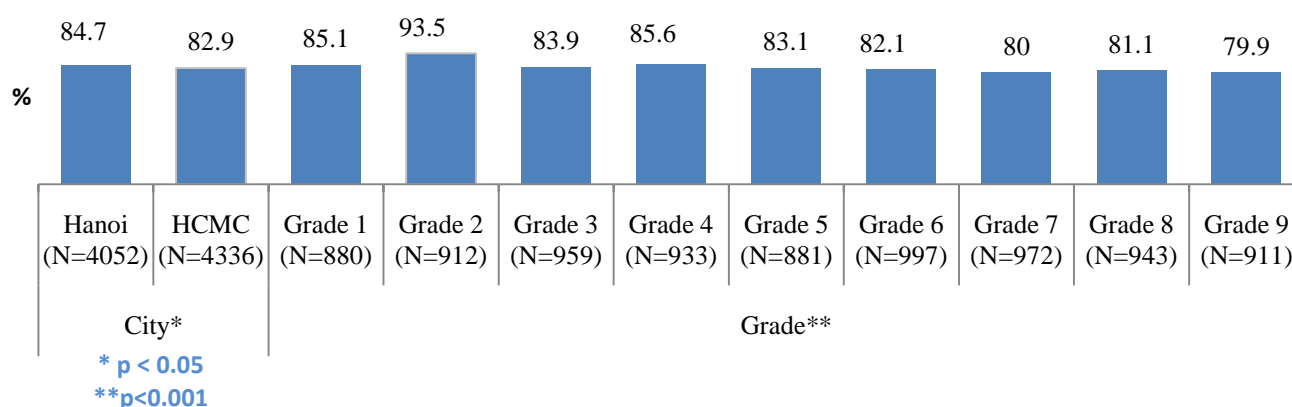
Annex 1: Other results



1. Reason for parents not agree to have their child wearing glasses by region, city

	N	Eyesight worse	P	Ugly, change eye's shape	P	Discomfort	P	Financial problems	P
Region									
Inner-city	81	30.9%		18.5%		37%		27.1%	
Outskirt	66	28.8%	p>0.05	21.2%	p>0.05	47%	p>0.05	30.3%	p>0.05
Total	147	29.9%		19.7%		41.5%		28.6%	
City									
Hanoi	74	35.1%	p>0.05	16.2%	p>0.05	44.6%	p>0.05	28.4%	p>0.05
HCMC	73	24.7%		23.3%		38.4%		28.8%	

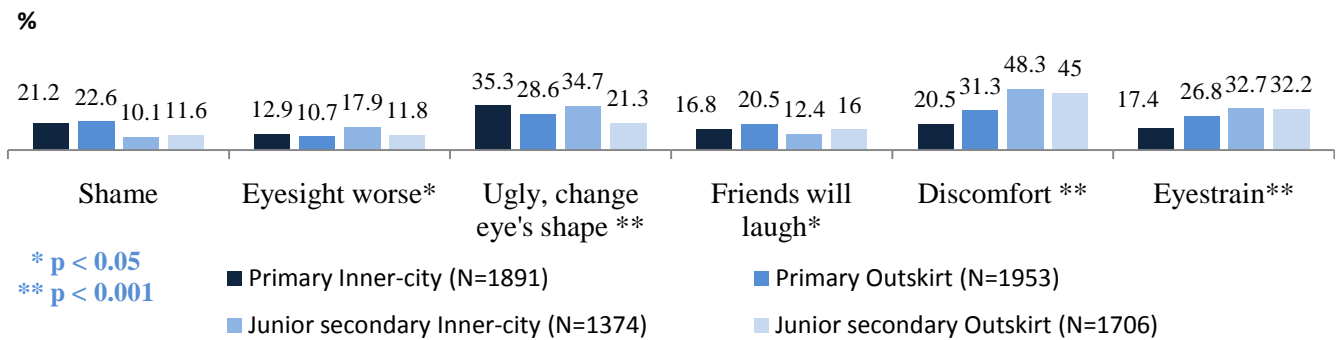
2. Percentage of students do not like using glasses by city and grade



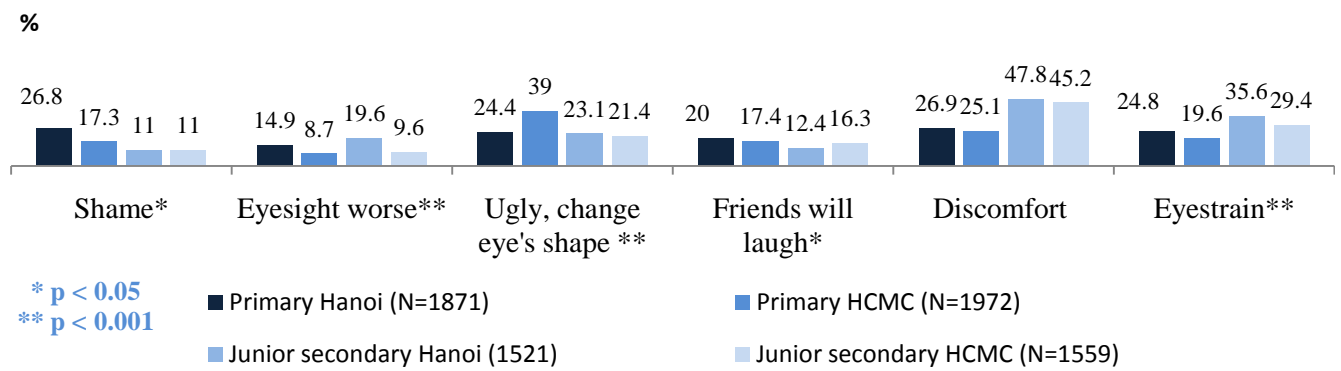
3. Percentage of students do not like using glasses by grade of each city

	N	%		N	%	
Hanoi p< 0.001	Grade 1	422	84.1	Grade 1	458	86
	Grade 2	429	92.8	Grade 2	483	94.2
	Grade 3	449	85.8	Grade 3	510	82.4
	Grade 4	428	86.9	Grade 4	505	84.6
	Grade 5	410	89.8	Grade 5	471	77.3
	Grade 6	498	82.3	Grade 6	499	81.8
	Grade 7	468	82.7	Grade 7	504	77.6
	Grade 8	465	81.1	Grade 8	478	81.2
	Grade 9	483	78.7	Grade 9	428	81.3
			HCM p<0.001			

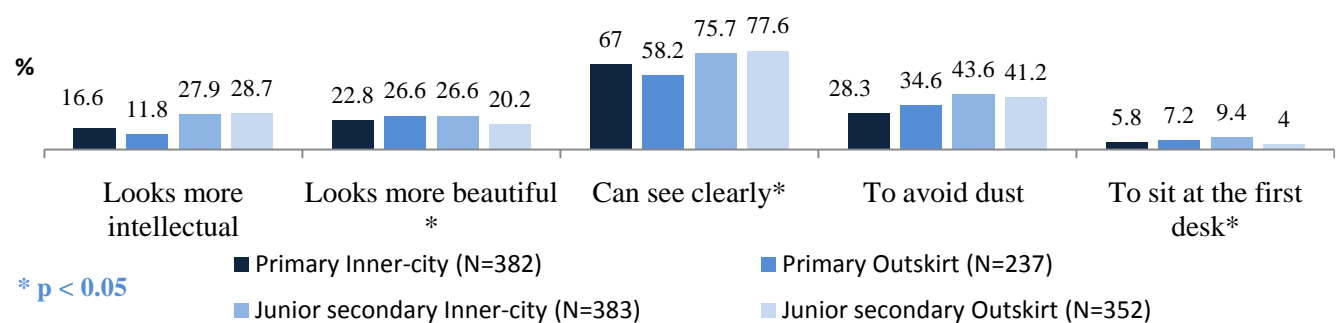
4. Reason for Students not to like wearing glasses by region and level



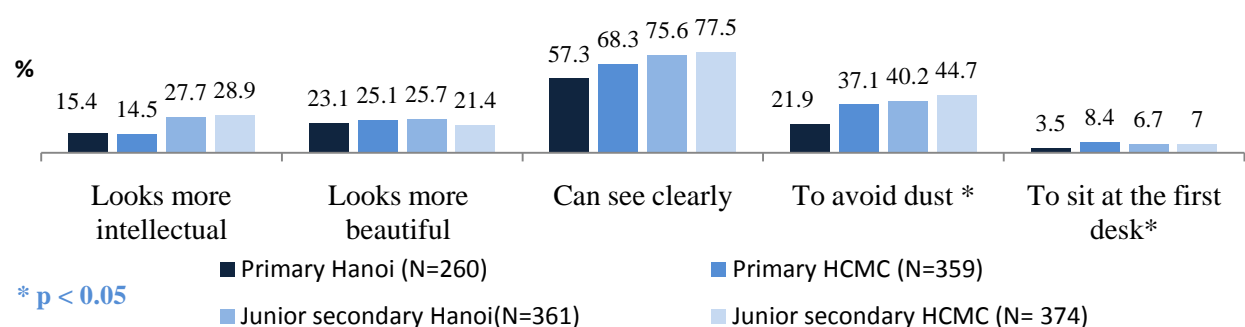
5. Reason for Students not to like wearing glasses by city and level



6. Reason for Students to like wearing glasses by region and level



7. Reason for Students to like wearing glasses by city and level



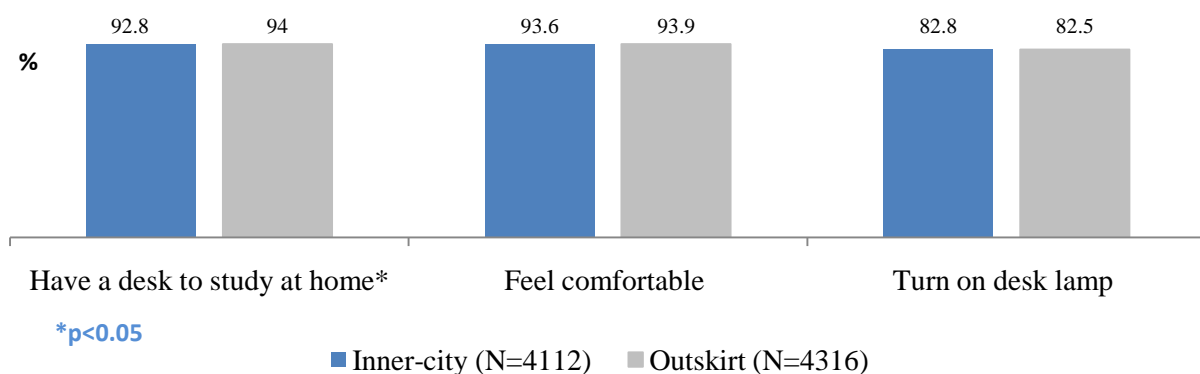
8. Proportion of Parents who don't care about their children's visual problems

	Hanoi	HCMC	Total	N	P
% Parents DON'T ask their children if they having problems while looking at the board					
Primary	13.2%	13%	13.1%	1152	NS
Junior secondary	16.7%	19.6%	18%	1447	NS
% Parents DON'T observe their children while they watch TV/ see in a far distance					
Primary	9.7%	11.2%	10.4%	1153	NS
Junior secondary	14.6%	16%	15.3%	1438	NS

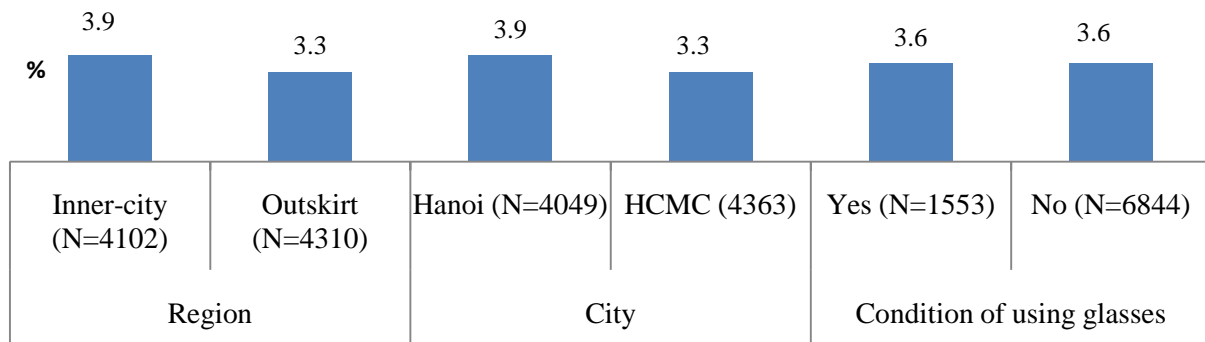
9. Proportion of Parents who cannot manage their children's time in studying, playing games, reading comic books by region, city, level

	Playing internet, game			Reading book, story		Watching TV		Reading in lack of light places	
	N	%	P	%	P	%	P	%	P
Region									
Inner-city	1392	30.3%	P<0.001	28.9%	NS	13.6%	NS	3.3%	NS
Outskirt	1272	39.5%		30.1%		12.7%		3.3%	
City									
Hanoi	1387	36.5%	P<0.05	29.5%	NS	14.2%	NS	3.7%	NS
HCMC	1277	32.7%		29.4%		12.1%		2.9%	
Level									
Primary	1196	46%	P<0.001	36.8%	P<0.001	16.6%	P<0.001	1.8%	P<0.001
Junior secondary	1486	25.7%		23.6%		10.5%		4.5%	

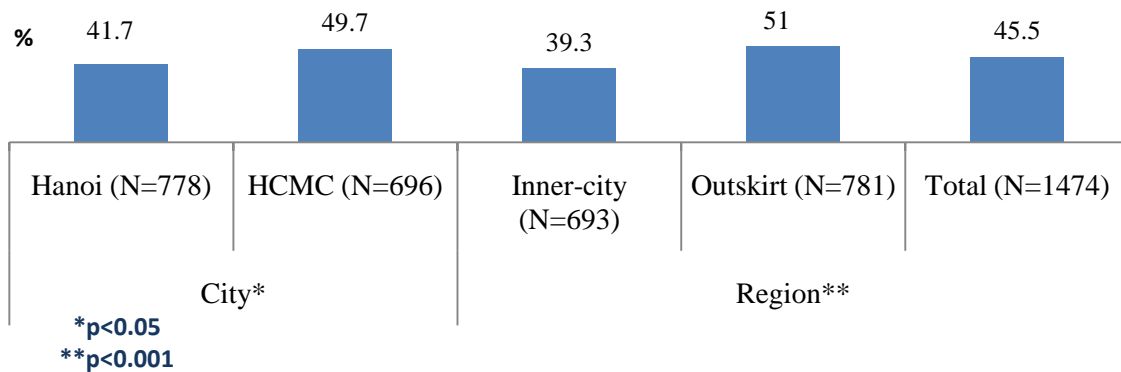
10. Study conditions at home by region



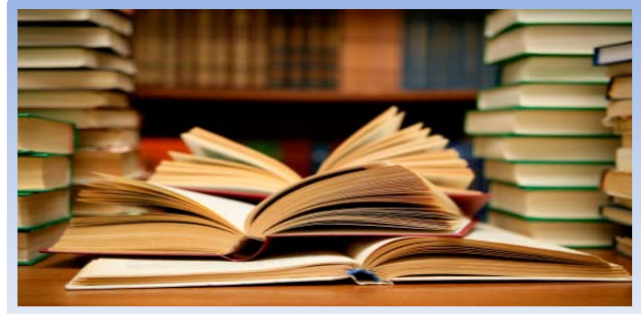
11. The ratio of Students usually read books/newspaper/story in lack of light places by region, city, condition of using glasses



12. Percentage of secondary students feeling headache, eyestrain after some activities but has never gone to have eyes check.



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