

Lifestyle Pattern of Visually Impaired Students at Special Blind Schools in Damanhour City

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Abstract: Background: people with visual impairment are vulnerable because they are limited in access information and loss of vision can cause changes personal's lifestyle. Aim: is to assess lifestyle pattern of visually impaired students at special blind schools in Damanhour city. Design: a descriptive cross-sectional research design. Settings: The Special Blind Schools in Damanhour city (namely El-Noor for the blind). Subjects: all visually impaired and blind students at the previous mentioned setting were included into the study (110 students). Tools: Tool (I): Students' Profile Structural Interview Questionnaire. Tool (II): Students' Healthy Behaviors and Lifestyle knowledge Assessment Sheet. Tool (III): Health Promoting Lifestyle Profile (HPLP) II. Results: the mean age of the studied students was 11.76 ± 3.706 years. The majority of them had poor level of knowledge compared to 65.4% of them had moderate health promoting lifestyle profile. There was highly statistically significant relation between students' total level of knowledge score regarding level of their health promoting lifestyle profile. Conclusion: the majority of visually impaired students had poor level of knowledge about healthy lifestyle. Recommendations: Providing visually impaired students with a booklet written in Braille that contains the most important daily healthy lifestyle habits.

Keywords: Visual impairment, Lifestyle, Pattern, Students.

I. INTRODUCTION

Vision is a vital means of obtaining information from the environment, lack of sight can severely limit a person's experience. Ali Fares A., et al (2018) ⁽¹⁾ The World Health Organization (WHO) (2008) Resnikoff S., et al (2008) and Signes-Soler I., et al (2016) ^(2,3) estimates that 90% of the 285 million visually impaired people in the world live in low-income countries.

The Arab countries are developing, and the prevalence of visual impairment and blindness is high in developing countries compared to developed ones. Altarawneh R K., (2021) ⁽⁴⁾ Also, visual impairment has a profound impact on the individual's life because sight is considered as one of the most important channels of communication with the outside world. Yaaqoub C., et al (2018) ⁽⁵⁾ So, they must pay attention to their quality of life by preventing diseases and disabilities. Altarawneh R K., (2021) ⁽⁴⁾

lifestyle refers to the characteristics of inhabitants of a region in a special time and place. Which includes day to day behaviors and functions of individuals in job, activities, fun, and diet. Farhud D., (2015) ⁽⁶⁾

Lifestyle and personal health are indeed very closely related aspects of human life, wellbeing, and survival. **Kassie T., (2004)** ⁽⁷⁾ According to the **WHO., (2011)** ⁽⁸⁾, lifestyle factors lie at the root of non-communicable diseases such as cancer and cardiovascular diseases. The current burden of chronic diseases reflects the cumulative effects of unhealthy lifestyles and the resulting risk factors over the life span of people and some of these influences are present before a child is born. **Jamison D., (2006)** ⁽⁹⁾

In Egypt, (2020) **WHO., (2020)** ⁽⁹⁾ chronic diseases are estimated to account for 82% of all deaths and 67% of premature deaths. Some of these chronic diseases such as arthritis, stroke and the co-occurrence of various chronic physical diseases are associated with higher prevalence of visual impairment. Visual impairment is associated with higher prevalence of depression and poorer cognitive function results. **Garin N., et al (2014)** ⁽¹¹⁾

Since President Abdel Fattah Al-Sisi initiative to declare 2018 as the year of those challenged with a disability, numerous efforts and decisions have been taken to assure them proper living conditions. In conjunction with the International Day of Persons with Disabilities, December 3, Egypt's Supreme Standing Committee on Human Rights released a statement reviewing national efforts to Promote and Protect the Rights of Persons with Disabilities in Egypt. **Egypt today stuff., (2020)** ⁽¹²⁾

Community health nurses care for children who have disabilities and provide support to students and enable each one of them to choose the life which he/she wishes and to enable them to attain it. So, community health nurses must be competent enough to communicate empathically in meaningful life with each visually impaired student. Additionally, she cooperates with teachers and families for prevention of social, physical, and psychological problems to those children as early as possible. **Ali Fares A., et al (2018)** ⁽¹⁾

Significance of the study

Vision is important in children 13-15 years for achievement of independence in living skills. The loss of vision causes major changes in lifestyle, and habits. **Ali Fares A., et al (2018)** ⁽¹⁾ Globally, about 2.2 billion people have a near or distance vision impairment. In at least 1 billion – or almost half – of these cases, vision impairment could have been prevented or has yet to be addressed. **WHO.,(2023)**⁽¹³⁾ According to World Health Organization (2020) **WHO., (2020)** ⁽¹⁴⁾, Egypt has approximately 1 million people blind and 3 million visually impaired. Therefore, it is important to study the lifestyle pattern of visually impaired students.

Aim of the study:

To assess lifestyle pattern of visually impaired students at special blind schools in Damanhour city.

Research Question:

What are the lifestyle pattern of visually impaired students at special blind schools in Damanhour city?

II. MATERIALS AND METHODS

Materials:

Research design:

A descriptive cross-sectional research design was used to carry out this study.

Setting:

The study was carried out in the Special Blind Schools in Damanhour City. Only one school was available (namely El-Noor school for the Blind).

Subjects

All visually impaired and blind students at the previous mentioned setting were included into the study (110 students) at 2019-2020 academic year.

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Tools for data collection: Three tools were designed and used for data collection.

Tool I: Students' Profile Structural Interview Questionnaire:

The first tool was developed by the researcher after reviewing recent literature **Vishnuprasad R., et al (2017)** **Fahmy SI., et al (2015)** and ^(15,16) in order to collect data from the participants. The tool included the following:

A. Students' socio-demographic data:

Such as age, religion, gender, residence, and students' caregivers or guardians. Additionally, using family socioeconomic status scale (SES). The updated and validated version by Fahmy and El-Shirbini in 2015 in English language. **Fahmy SI., et al (2015)** ⁽¹⁶⁾ It was translated into Arabic language by the researchers. The 10 variables of SES of any family included mothers' education, fathers' education, mothers' occupation, fathers' occupation, use of computer, per-capita income, family size, crowding index, sewage disposal, and refuse disposal.

Scoring system:

Family socioeconomic status scale was scored as the following:

- Poor socioeconomic status <40%
- Medium socioeconomic status 40 to <70%
- Good socioeconomic status ≥70%

B. Students' health profile:

visual acuity as reported, degree of visual impairment, students' health history, and present health status, and students' level of independency in daily living activities.

C. Family health history:

Chronic disease, consanguinity, hereditary disease, or disabilities.

D. Assessment school physical environment (inside and outside):

It consists of 15 items which categorized into the following: internal school environment (nine items), external school environment (two items), rehabilitation services (three items) and insurance health services (one items).

Scoring system:

School physical environment was scored as the following:

- Poor school physical environment < 50%
- Fair school physical environment < 75%
- Good school physical environment ≥ 75%

E. Students' health insurance services:

Presence of health insurance, use of these services, and benefits of these services.

F. Students' rehabilitation services and technological educational services:

The availability of rehabilitation services, types of services used, the use of modern technology in education, and the type of applications used.

G. Students' body measurements (weight and height): De-Onis M., et al (2007) ⁽¹⁷⁾

Anthropometric measurement: weight and height were measured by the researcher. Then, Body Mass Index (BMI) was calculated using the following equation: $[BMI = \text{weight (kg)} / \text{height (m)}^2]$ then interpreted based on WHO growth reference/standards cut-off points for adolescents (5-19 years).

Tool II: Students' Healthy Behaviors and Lifestyle knowledge Assessment Sheet:

This tool was developed by the researcher after reviewing the recent literature **Sajwani RA., et al (2009) and Liu X., et al (2020)** ^(18, 19) to collect data from the participants to assess their knowledge about six dimensions of healthy behaviors and lifestyle (nutrition, physical exercises, risk taking behaviors, self-care, relaxations and stress management, injury prevention and safe environment).

Scoring system: Each questions' answer was scored as follow: correct complete answer (2), correct incomplete answer (1), and incorrect answer (0).

➤ Students' knowledge level was categorized as follows: -

- < 50% = Poor level of knowledge.
- 50% < 65% = Fair level of knowledge.
- 65% - 100% = Good level of knowledge.

Tool III: Health Promoting Lifestyle Profile (HPLP) II: Tracy W., (2012) and Alzahrani SH., et al (2019) ^(20, 21)

Lifestyle behavior was assessed using the Health Promoting Lifestyle Profile (HPLP) II. The original instrument (HPLP) had 48 items (Walker et al.,1987). The instrument was revised to include more up-to-date information and to even out the number of items in each subscale (Walker & Hill-Polerecky, 1996). The revised HPLP II tool was used by the researcher, it consists of 52 health-promoting behavior items that are categorized into six subscales as following: **Health responsibility** (nine items), **Spiritual growth** (nine items), **Physical activity** (eight items), **Interpersonal relationships** (nine items), **Nutrition** (nine items), **Stress management** (eight items).

Scoring system:

A Likert-type scale was used to measure each behavior as follows: Never scored (1), Sometimes scored (2), Frequently scored (3), Regularly scored (4).

- The total score of the HPLP II was ranged from 52 to 208 and was measured by the mean score of the responses to all 52 HPLP items.

- The total HPLP II score was further classified into four levels:

- Poor HP (52-< 91)
- Moderate HP (91-< 130)
- Good HP (130-<169)
- Excellent HP (169-208)

Methods

The study was implemented according to the following steps:

1- Administrative process:

- Official letter was obtained from the Dean of Faculty of Nursing Damanhour University and was directed to Mobilization and Statistics Authority in Cairo to inform about study objectives and to obtain permission to conduct the study.
- Official letter from Mobilization and Statistics Authority in Cairo was directed to the Under-Secretary of the Ministry of Education in El-Beheira Governorate.
- Official letter from the Under-Secretary of the Ministry of Education in El-Beheira Governorate was directed to Director of special Education for the Directorate of Education in El-Beheira Governorate to inform about the study objectives and to obtain permission to conduct the study in the selected settings.
- Official letter from the Director of special Education for the Directorate of Education in El-Beheira Governorate to Director of Al Noor and Al-Amal School for the Blind in Damanhour city.

2- Validity and reliability of study tools:

After reviewing the literature, the tools of the study were designed.

- Tool I, II were developed by the researcher based on recent literature. **Fahmy SI., et al (2015) and Liu X., et al (2020) (16,19)**
- Tool III was adapted and translated into Arabic and was collected through students' interview.
- Tools were tested for content validity by a jury of five experts in the field of Community Health Nursing and Pediatric Nursing.
- The tools were revised, reconstructed, and made ready for use. The recommended modifications were done, and the final form was prepared after proving valid.
- Tools were checked for their reliability by test-retest technique Cronbach' Alpha at result of tool III was 0,768.

Pilot study

- A Pilot study was carried out on 10% of the sample which is composed of 11 students (male and female), they were selected randomly and were included in the study sample, and the clarity, and applicability of the tool were done. Accordingly, the necessary modifications were done.

3- Collection of data:

- Data was collected by the researcher during the period from October 2020 until the end of December 2021. The purpose of the research was explained to all students and their guardians before starting to answer the questionnaire sheets to gain their cooperation and confidence.
- Interviews were carried out individually with students during break time to collect data.
- Suitable place was arranged for measuring weight (using electronic weighing scale), and the height (using measuring tape).
- Because there were young students who could not answer most of the questions, we used their guardians.
- Data was collected from students' guardians for pre-school students and grade one and grade two in elementary school students after determining an appointment.

4- Statistical analysis:

- The collected data was revised, categorized, coded, computerized, tabulated and analyzed using statistical package for social sciences (SPSS) version 20.

The following statistical measures were used:

- Cross tabulation with frequency distribution and percentages were used to explore relationships between variables.
- Variables were analyzed using the descriptive statistics which included: percentages, frequencies, range (minimum and maximum), arithmetic mean, and standard deviation (SD). They are used as measures of central tendency for normally distributed quantitative data.
- Appropriate tests were used as ANOVA test, t Student t test, and Chi-square at 0.05 level of significance.
- For graphical presentation: Graphs were done for data visualization using Bar and Pie charts.

5- Ethical consideration:

- Research approval was obtained from the ethical committee at faculty of nursing Damanshour University.
- Written consent from subjects was obtained.
- Keeping subjects' privacy, right to withdrawal at any times as well as assuring confidentiality of their data.

III. RESULTS

Table (1): Distribution of the studied students according to their socio-demographic data.

Students' socio-demographic data	Total (n =110)	
	No.	%
Age (years)		
▪ <10	38	34.5
▪ 10-	40	36.4
▪ ≥15	32	29.1
Mean ± SD	11.76 ± 3.706	
Gender		
▪ Male	53	48.2
▪ Female	57	51.8
Place of residence		
▪ Rural	58	52.7
▪ Urban	52	47.3
Students' habitation at time of the study		
▪ With their family at their own homes	26	23.6
▪ Staying at school inboard while studying	84	76.4
Students' family caregivers		
▪ Father/Mother	94	85.5
▪ Relatives as grandparents	16	14.5
Birth order		
▪ First child	54	49.1
▪ Second	33	30.0
▪ Third and more	23	20.9
Level of education		
▪ Primary stage	66	60.0
▪ Preparatory	19	17.3
▪ Secondary	25	22.7
▪ Caregiver of the child inside school #		
▪ Administrator, supervisors, teachers, nurses, workers	110	100.0

#Multiple responses were allowed

Table (2): Distribution of the studied students according to their parents' socio-economic data.

Items	Total (n=110)	
	No.	%
Fathers' education		
▪ Illiterate	5	4.5
▪ Read and write	22	20.0
▪ Pre-university education	51	46.4
▪ University education	32	29.1
Fathers' occupation		
▪ Professional job	19	17.3
▪ Administrative job	21	19.1
▪ Skillful job	25	22.7
▪ Trade works	38	34.5
▪ Retired	7	6.4
Mothers' education		
▪ Illiterate	6	5.5
▪ Read and write	29	26.4
▪ Pre-university education	46	41.8
▪ University education	29	26.4

Mothers' occupation		
▪ Professional job	14	12.7
▪ Administrative job	10	9.1
▪ Skillful job	12	10.9
▪ Trade works	6	5.5
▪ Housewife	68	61.8
Type of family		
▪ Nuclear	81	73.6
▪ Extended	29	26.4

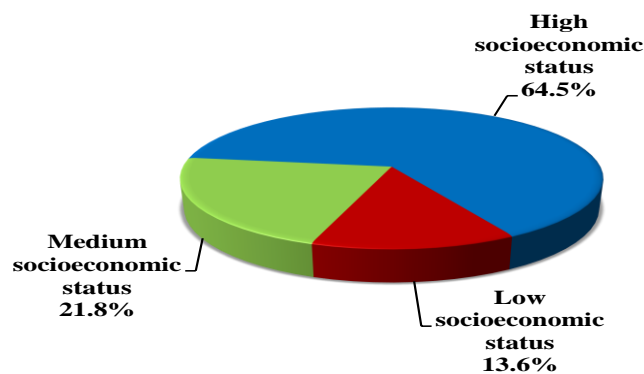


Figure (1): Family socio-economic status (SES)

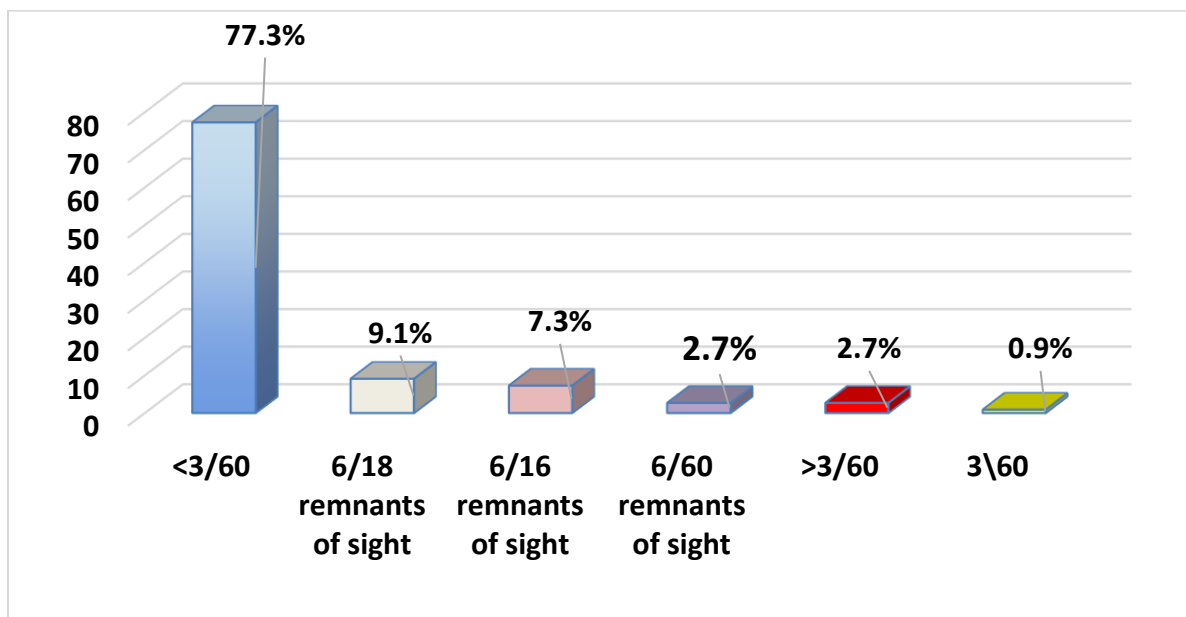


Figure (2): Distribution of the studied students according to their current visual health condition.

Table (3): Distribution of the studied students according to their level of dependency.

Items	Total (n=110)	
	No.	%
Total Level of Dependence		
▪ Completely dependent	64	58.2
▪ Partial dependent	41	37.3
▪ Completely independent	5	4.5

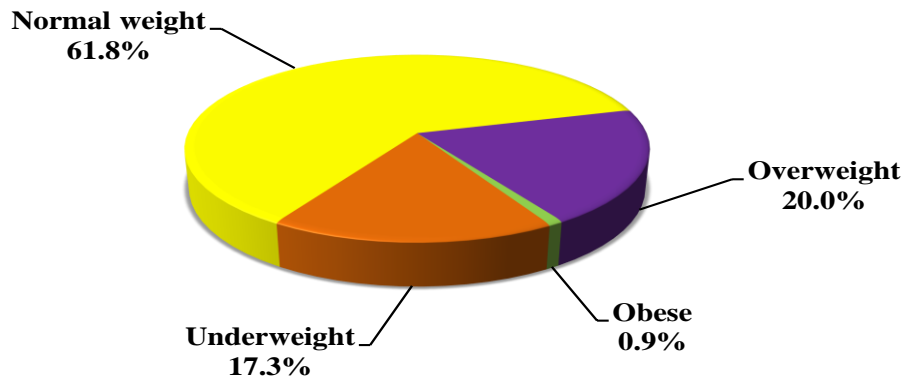


Figure (3): Body Mass Index

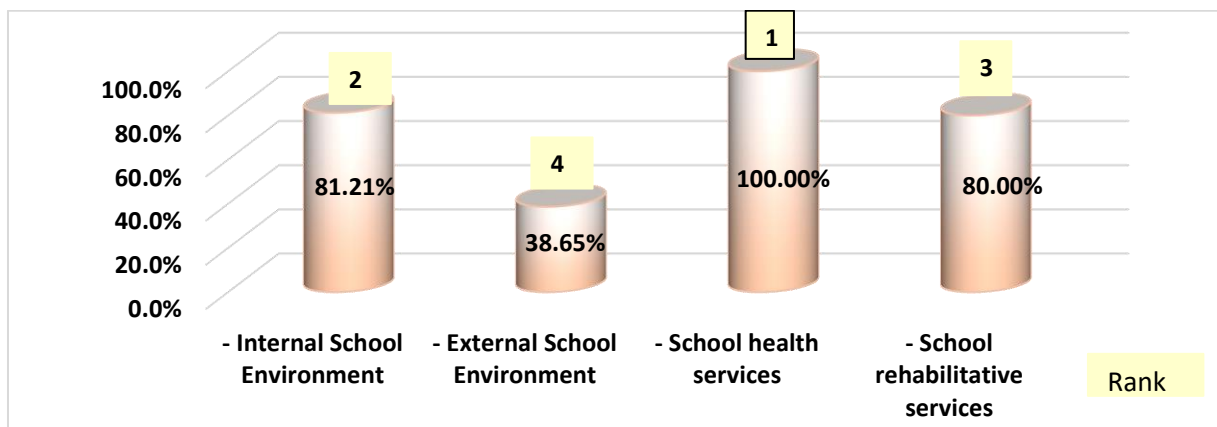


Figure (4): Distribution of the studied students according to the mean score of their opinion about the school environment (By domains)

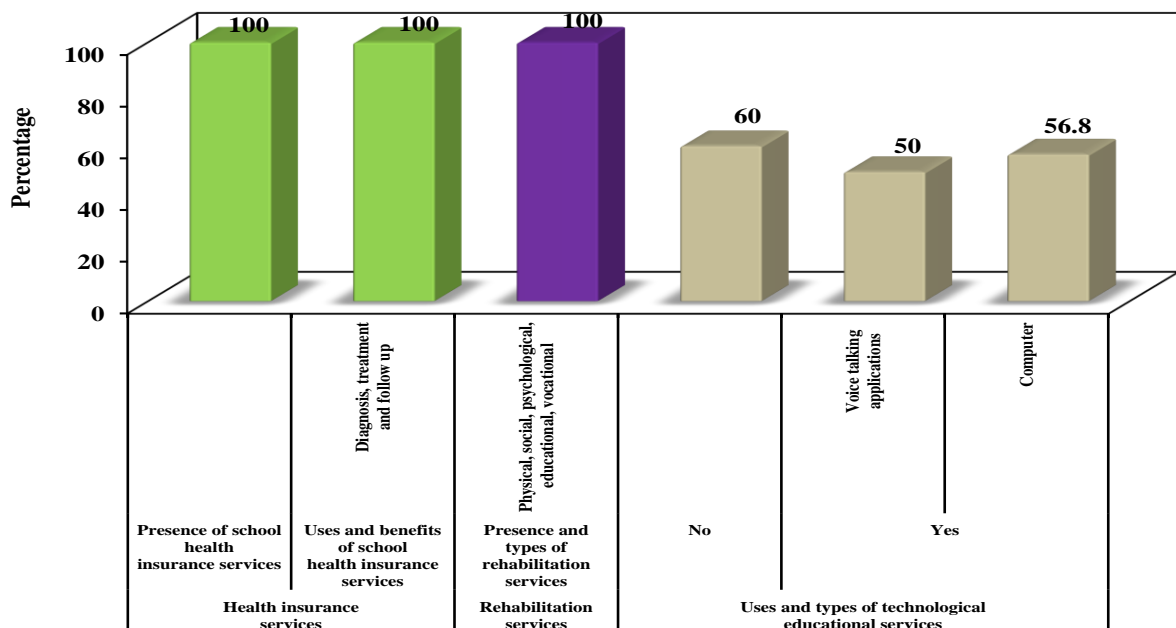


Figure (5): Distribution of studied students according to the availability of health insurance, rehabilitation, and technological educational services.

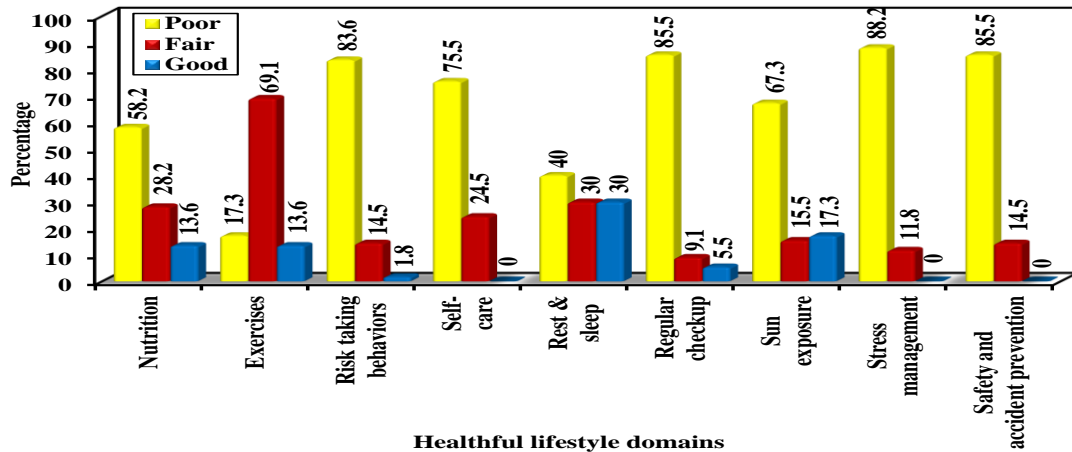


Figure (6): Distribution of the studied students according to their levels of knowledge about healthful lifestyle (By domains)

Table (4): Distribution of the studied students according to their levels of health promoting lifestyle (By domains).

Health Promoting Lifestyle Domains	Levels of health promoting lifestyle profile							
	Poor		Moderate		Good		Excellent	
	No.	%	No.	%	No.	%	No.	%
- Health authority	3	2.7	55	50.0	47	42.7	5	4.5
- Spiritual growth	1	0.9	56	50.9	49	44.5	4	3.6
- Physical activity	1	0.9	34	30.9	66	60.0	9	8.2
- Interpersonal relations	0	0.0	78	70.9	29	26.4	3	2.7
- Nutrition	5	4.5	80	72.7	23	20.9	2	1.8
- Stress management	0	0.0	34	30.9	67	60.9	9	8.2
Total percentages of HPLP	0	0.0	62	65.4	47	42.7	1	0.9

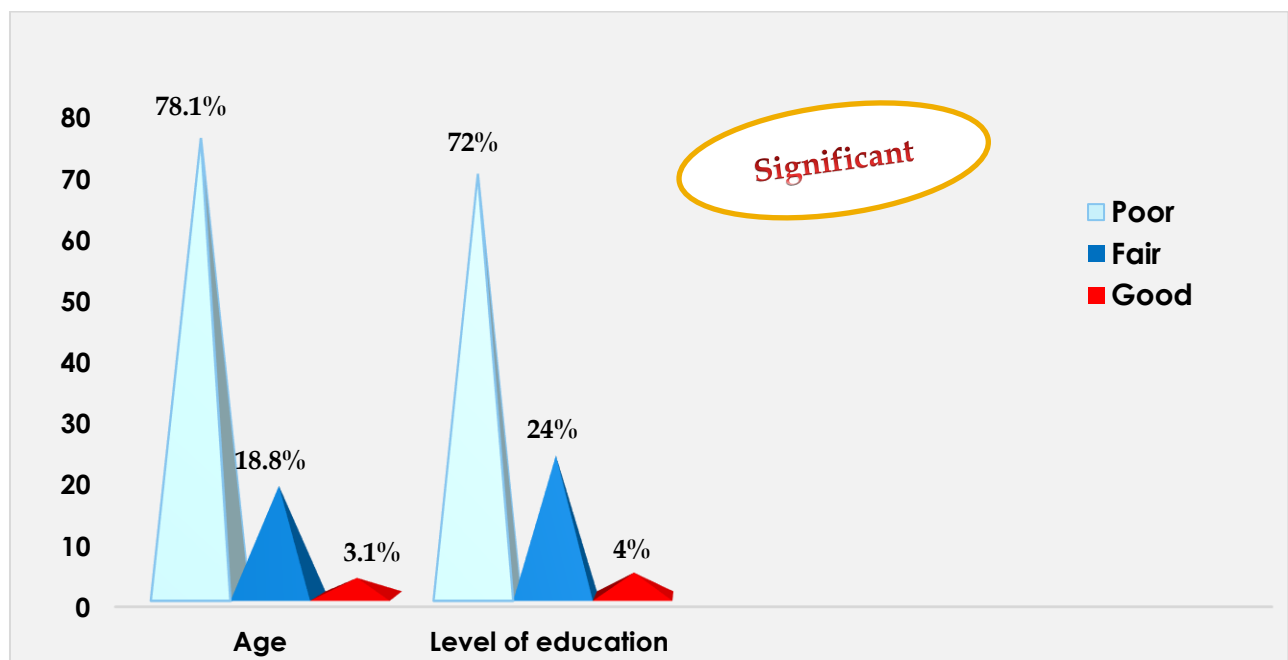


Figure (7): The relationship between the studied students' levels of knowledge about healthy lifestyle and their socio-demographic characteristics.

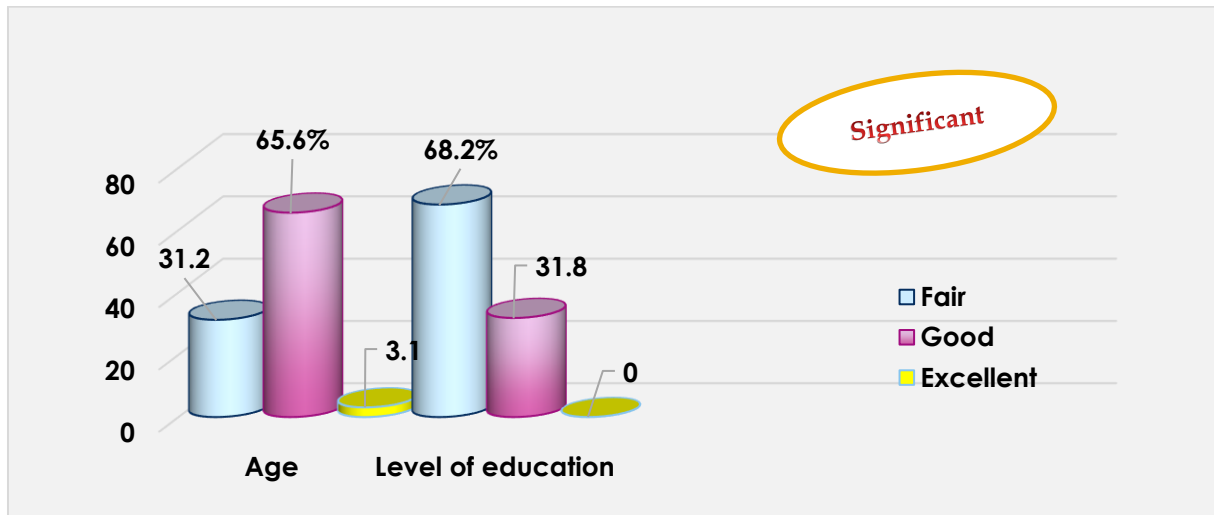


Figure (8): The relationship between the studied students' levels of health promoting lifestyle profile and their socio-demographic characteristics

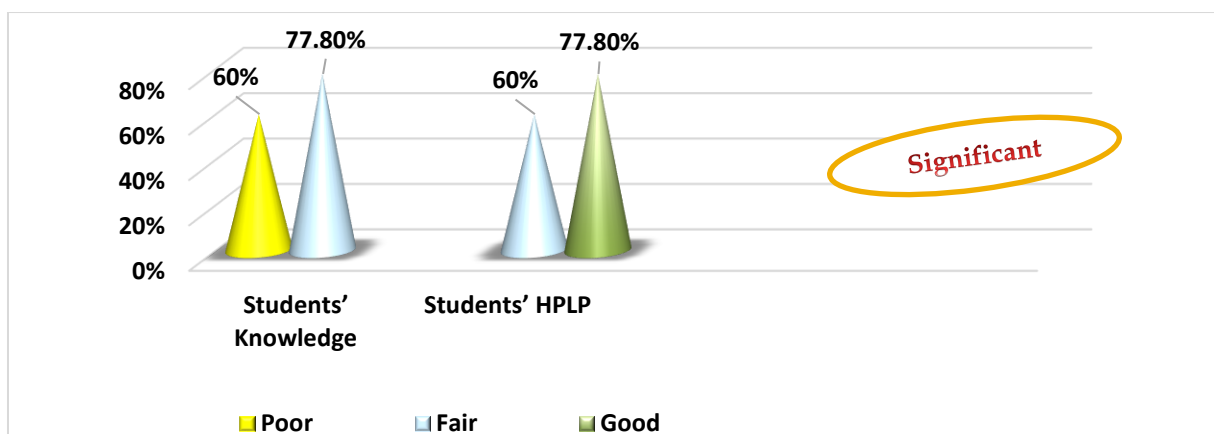


Figure (9): The relationship between the studied students' levels of health promoting lifestyle profile and their knowledge.

Table (1): shows the studied students' socio-demographic data. Concerning age, it ranged from 10-16 years as mean age of 11.76 ± 3.706 years. Additionally, more than half of them were female. It was noticed that 49.1% of students ranked as first child in their families. Regarding the level of education of students, less than two thirds (60.0%) of students were in primary stage, nearly one fifth (17.3%) of them in preparatory stage, and less than one quarter (22.7%) in secondary stage. It was observed that more than half (52.7%) of studied students live in rural areas. About students' habitation at time of the study, more than three quarters (76.4%) of them were staying at school inboard while studying. As regards who caring for the child at their home, it was reported by the majority of students (85.5%) that fathers and mothers were the primary caregivers for them.

Table (2) illustrates the distribution of studied students according to their parents' socioeconomic data. It was found that less than half of students' fathers and mothers (46.4%, 41.8% respectively) had pre-university education. As regards parents' occupation, it was noted that more than one third of fathers' occupation working as trader compared to nearly two thirds (61.8%) of mothers were housewife. Also, it was noticed that two thirds of them (65.4%) had crowding index 2 to more than 3 members/ bedroom with Mean \pm SD were 2.133 ± 0.594 .

Figure (1) demonstrates the students' socioeconomic status. It was found that 64.5% of studied students had high level of socioeconomic status compared to one fifth had medium level and one tenth for those low level.

Figure (2) shows the distribution of the studied students according to their current visual health condition. It was observed that more than three quarters (77.3%) of studied students' current vision acuity was $<3/60$, while 9.1% of them reported 6/18 remnants of sight, 7.3% of them had 6/16 remnant of sight and the same number 2.7% was reported for those had 6/60 remnant of sight and $>3/60$ of vision acuity.

Table (3) clarifies the distribution of the studied students according to their level of dependency. It was clear from the table that more than half (58.2%) of studied students' total level of dependence was completely dependent on others compared to more than one third (37.3%) of them were partially dependent and only 4.5% of them were completely independent.

Figure (3) reveals students' body mass index. It is clear that less than two thirds (61.8%) of studied students' body mass index were normal weight, while 20.0% of them were overweight, compared to 17.3% of them were underweight and only 0.9% of them were obese.

Figure (4) displays the distribution of the studied students according to the mean score of their opinion about the school environment (By domains).

It was observed from the figure that the first approved by students about school services and environment was school health services with rank 1, then internal school environment with rank 2, school rehabilitative services with rank 3 and external school environment with rank 4.

Figure (5) reveals the distribution of studied students according to the availability of health insurance, rehabilitation, and technological educational services. As regard to health insurance services, all studied students had school health insurance services for diagnosis, treatment and follow up. Concerning the presence of rehabilitation services, all studied students had rehabilitation services; physical, social, psychological, educational, and vocational. About using educational technological aids, it was observed that less than half (40.0%) of students reported using technology aids in education; 50.0% out of this percent used voice talking applications\devices and more than half (56.8%) of them used computers.

Figure (6) displays the studied students' levels of knowledge about healthful lifestyle (By domains). Concerning to students' levels of knowledge about nutrition. It is apparent from the figure that more than half (58.2%) of studied students had poor knowledge level related to nutrition, followed by 28.2% of them who had fair knowledge and 13.6% of them had good level.

Regarding students' levels of knowledge about exercises, more than two thirds (69.1%) of studied students had fair level of knowledge related to exercises, followed by 17.3% of them who had poor knowledge and more than tenth (13.6%) of them had good level.

Concerning studied students' levels of knowledge about risk taking behaviors which contains smoking, substance abuse and alcohol; the majority (83.6%) of studied students had poor knowledge level related to risk taking behaviors, followed by less than one fifth (14.5%) of them who had fair knowledge and only (1.8%) of them had poor level of knowledge about risk taking behaviors.

As regards to self-care which consists of personal hygiene, hand washing, teeth care, bathing, nail care and clothes care; more than three quarters (75.5%) of studied students had poor knowledge level related to self-care and less than one quarter (24.5%) of them had fair knowledge level.

It was noticeable that less than half (40.0%) of the studied students had poor knowledge level related to rest and sleep, and the same percentages (30.0%, 30.0%) of them had fair and good knowledge levels respectively.

Table (4) reveals the distribution of the studied students according to the level of their healthpromoting lifestyle profile (By domains). The total percentages health promoting lifestyle levels of studied students were 65.4%, 42.7% and 0.9% for moderate, good, and excellent respectively.

Considering the studied students' health authority, half of them (50.0%) had moderate health promoting lifestyle level compared to 2.7% of them had poor level.

Concerning the studied students' spiritual growth, more than half of them (50.9%) had moderate health promoting lifestyle level compared to 0.9% of them had poor level.

In relation to the studied students' physical activity, more than half (60.0%) of them had good health promoting lifestyle level compared to 0.9% of them had poor level.

Pertaining to the studied students' interpersonal relations, less than three quarters (70.9%) had moderate health promoting lifestyle level compared to 2.7% of them had excellent level.

With regards to the studied students' nutrition, less than three quarters (72.7%) had moderate health promoting lifestyle level compared to 1.8% of them had excellent level.

Concerning the studied students' stress management, less than two thirds (60.9%) had moderate health promoting lifestyle level compared to 8.2% of them had excellent level.

Figure (7) shows the relationship between the studied students' levels of knowledge about healthy lifestyle and their socio-demographic characteristics. There was statistically significant relation between the students' age, level of education and their levels of knowledge about lifestyle ($p= 0.028$, $p= 0.013$) respectively.

Figure (8) shows the relationship between the studied students' levels of health promoting lifestyle profile and their socio-demographic characteristics. It was clear from the figure that there was statistically significant relation between the students' age, level of education and their levels of health promoting lifestyle profile ($P= 0.001$, $P= 0.028$) respectively.

Figure (9) clarifies the relationship between the studied students' levels of health promoting lifestyle profile and their knowledge. It reveals that 77.8% of the students had fair level of knowledge about healthful lifestyle also had good level of health promoting lifestyle profile compared to 60.0% of them whose had poor level of knowledge also had fair level of health promoting lifestyle profile. There was highly statistically significant relation between students' level of knowledge and level of their health promoting lifestyle profile. ($P= 0.000$)

IV. DISCUSSION

Visual impairment as a form of disability is a source of social exclusion. It has negative impact on health outcomes of a population and is considered the most common form of disability. **Eze U., (2022)**⁽²²⁾ Globally, at least 2.2 billion people have a near or distance vision impairment. **WHO.,(2023)**⁽¹³⁾ According to World Health Organization (2020) **WHO.,(2022)**⁽²³⁾, Egypt has approximately 1 million people blind and 3 million visually impaired.

Visual disability at an early age impairs the development of motor skills, cognition, and language during significant periods of child development. **Toledo CC., (2010)**⁽²⁴⁾ The current study revealed that more than one third of the studied students are in the age group from 10-14 years with a mean age 11.76 ± 3.706 . This finding agreed with a study in Asia conducted by **Açıl D et al., (2015)**⁽²⁵⁾ at a primary school for the visually impaired students which revealed that the mean age of the children was 10.43 ± 2.88 years. Also, this finding differs with a study performed by **Wrzesińska M et al., (2015)**⁽²⁶⁾ at Special Schools for Blind and Low Vision pupils in Łódź, Kraków, Wrocław, Dąbrowa Górnicza which revealed that the mean age of students was 15.5 ± 3.9 .

Regarding studies students' gender, the present study revealed that prevalence of blindness was higher among females than males, where more than half of the studied students are females. Inequity in access to preventive and curative eye care services may explain a higher prevalence of blindness in female. Similarly, because of families' traditions towards females and it is difficult for them to reach health services which let them to be more susceptible to infection and blindness. These results are supported by studies conducted by **Ibrahim et al., (2022)**⁽²⁷⁾ at El-Noor and El-Amal school for children having blindness Heliopolis, Cairo, they found that three quarters of the studied children were females. These findings are contradicted with studies conducted by **Gür et al., (2022)**⁽²⁸⁾ in Turkey and **Abdelazeem et al., (2022)**⁽²⁹⁾ at Al Noor School in Minia Governorate who stated that two thirds of the students were males.

Rural areas in Egypt have low socioeconomic development with poor access to vision care centers, and health care practices. **Mahmoud T., (2014)**⁽³⁰⁾ The current study reveals that more than half of the study sample lives in a rural area. Likewise, the current results agreed with studies conducted by **Farouk Mahmoud., (2016)**⁽³¹⁾ at Deaf and Blind from El-Amal School for Deaf and Hard for Hearing, and El-Nour School for Blind at Zagazig City who stated that the rural areas where the majority of the students reside. On the other hand, the current study is contradicted with a study conducted by **Alii and Abd-El Aal., (2015)**⁽³²⁾ who found that about two thirds of students live in urban area.

The causes of Severe Visual Impairment (SVI) and blindness may be prenatal, perinatal, and postnatal. **Guggenheim JA., et al (2013)** ⁽³³⁾ The current study revealed that nearly half of the study students were the first child in their families. This result be consistent with the study conducted by **Mohamed OR., (2022)** ⁽³⁴⁾ at two schools for blind girls in Cairo and Mansoura cities, Egypt which found that about half of studied students were the first child. Because of the different risk factors women may be exposed to during pregnancy of her first child at prenatal, perinatal, and postnatal which may result in born of totally or partially blind infant. So, the family tries to avoid this challenging experience at subsequent pregnancy.

In relation to caregiver at home and existence of mother and father. The current study found that more than three quarters of father and mother were considered as caregiver. This in agreement with **Ibrahim F., (2022).** ⁽²⁷⁾ Mother and father should both share in care for children this may be very important for the children and make them happy.

Regarding studied students' socioeconomic status the current study revealed that 64.5% of studied students had high socioeconomic status. Thus, may be because of more than one third of their fathers work as trader. Additionally, the present study revealed that more than half of the studied students' families have enough income. These results were supported by study conducted by **Farouk Mahmoud., (2016)** ⁽³¹⁾ at Deaf and Blind from El-Amal School for Deaf and Hard for Hearing, and El-Nour School for Blind at Zagazig City who reported that more than half of the parents' monthly income is sufficient but not saving.

Education affects people's visual health through a variety of different mechanisms, such as changing people's lifestyle, improving people's ability to solve problems, and changing people's values. **Yan X., et al (2019)** ⁽³⁵⁾ In this study, findings revealed that less than half of students' parents have pre-university education and more than one third of their fathers are trader works, while less than two thirds of the mothers are housewives. The current study result agreed with a study of **Yan X., et al (2019)** ⁽³⁵⁾ who reported that people with lower levels of education are more prone to VI. Also, consistent with the results of **Mahmoud & Elmahdy., (2014)** ⁽³⁰⁾ at Al Noor and Al Amal Schools in Assiut Governorate who reported that more than half of fathers and more than one-third of mothers are illiterate.

Regarding studied students' current vision acuity, the current study revealed that more than three quarters of studied students' current vision acuity was $<3/60$. These findings at the same line with a study performed by **Asferaw M et al., (2017)** ⁽³⁶⁾ at nine schools for the blind in Northwest Ethiopia who found that the majority of the studied students were blind, and their visual acuity was $<3/60$ and 3.4% from them were in sever visual impairment.

Regarding students' total level of dependence, the study findings revealed that, more than half of the students had total scores as completely dependent in their daily living activities. These results agreed with study conducted by **Munaw MB., et al (2022)** ⁽³⁷⁾ at the University of Gondar Tertiary Eye Care and Training Center in Gondar City, who revealed that individuals with visual impairment have difficulty of doing activities of daily living, which leads to dependency. Thus, may be because more than three quarters of studied students' current vision acuity was $<3/60$, so they are afraid of exposure to daily accidents and injuries while doing their usual daily activities, so they need care providers to depend on.

The current study revealed that, more than three quarters of the studied students were staying at school while studying. This result agreed with studies conducted by **El-Kurdy et al., (2020)** ⁽³⁸⁾ at Al-Nour School for the Blind in Mansoura governorate who reported that about two-thirds of the visually impaired students have an internal residence. While the current study finding disagreed with a study conducted by **Abdelazeem AM et al., (2022)** ⁽²⁹⁾ at Al Noor School in Minia Governorate who found that more than half of students not staying at EL-Nour institute. Thus, may be related to the long distance between students' residence from their school where more than half of the study sample lives in rural areas.

Regarding health insurance services the current study findings revealed that; all students had school health insurance services and all of them use it. However, the study findings were inconsistency with **Abodey et al., (2020)** ⁽³⁹⁾ who reported that the health care was not accessible to students with disabilities. In fact, students with disabilities always in need for school health insurance for continuous follow up, treatment and this is considered one of the successes of the health insurance system in Egypt and the caring of the President Abdel Fattah El-Sisi in supporting people with disabilities.

Regarding studied students' body measurement the present study findings revealed that, less than two thirds of studied students' body mass index were normal weight, while 20.0% of them were overweight, compared to only 0.9% of them were obese. This was in line with study of **Al-Rahamneh H., et al (2015)** ⁽⁴⁰⁾ who reported that the percentages of obesity observed in among Jordon visually impaired students were 6.5%. This because, most of the studied students stay at school during studying and the school provides them with healthy, balanced meals and includes various sports games that are suitable for them.

People with visual impairment are highly vulnerable because visual impairment limits access to health information and the ability to practice a healthy lifestyle. **Hung SL., et al (2018)** ⁽⁴¹⁾ The current study results showed that, the majority of the students had poor level of knowledge about healthful lifestyle. This could be due to the difficulty for them to access health information due to visual impairment. This result was supported by study conducted by **Abd- Elhafz S.M., (2013)** ⁽⁴²⁾ who found that unsatisfactory knowledge and practices about healthy lifestyle among studied students.

There was a statistically significant difference between students' age, level of education and their levels of knowledge about lifestyle. The current results agreed with a study conducted by **Burmeister A. et al., (2018)** ⁽⁴³⁾ who reported that there was positively associated between age and knowledge.

Regarding the studied students' level of their healthpromoting lifestyle profile (By domains), the current study findings revealed that, total health promoting lifestyle profile of the studied students and all of its domains were moderate and the highest scores were recorded in stress management followed by physical activity then spiritual development and finally interpersonal relationships. These could be because the majority of studied students were staying at school during study and the school provides them with healthy food, appropriate sports and physical activities, and provide them rehabilitation services. These findings were contradicted with a study conducted by **Hung SL et al., (2018)** ⁽⁴¹⁾ at Southern Taiwan who reported that the mean subscale score for the HPLP-II was 2.52 ± 0.37 . The lowest scores were on the physical activity and nutrition subscales, and the highest scores were on the spiritual growth and interpersonal relations subscales.

There was statistically significant relation between the students' age and their levels of health promoting lifestyle profile. The current study findings were in the same line with a study conducted by **Li SJ. et al., (2020)** ⁽⁴⁴⁾ at China who found that there was a significant difference in age, gender, residence, education level, marital status, and family economic level on HPLP (health promoting lifestyle profile) scores.

V. CONCLUSION AND RECOMMENDATIONS

Based upon the findings of the current study it could be concluded that the majority of visually impaired students had poor level of knowledge about healthy lifestyle and total health promoting lifestyle profile of the studied students and all of its domains were moderate and the highest scores were recorded in stress management followed by physical activity. There was highly statistically significant relation between students' level of knowledge and level of their health promoting lifestyle profile.

Based on the current study findings the following recommendations are suggested:

- 1- Developing school programs designed to assist visually impaired students in developing healthy lifestyle behaviors to include in the curriculum.
- 2- Expanding the national strategy raising awareness campaigns about risk factors of unhealthy lifestyle behaviors.
- 3- Increase ongoing special campaigns of growth and development to students with visual impairment for early detection of obesity.
- 4- Providing visually impaired students with a booklet written in Braille that contains the most important daily healthy lifestyle habits and risks of unhealthy habits.

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