



An Educational Program for Students with Physical Impairments at Helwan University

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ABSTRACT

Background: Physical impairment is a disability that limits a student's physical capacity to move, coordinate actions or performs physical activities. It is accompanied by difficulties in one or more of the following areas: physical and motor tasks, independent movement, and performing daily living functions. **Aim:** This study aimed to evaluate the effectiveness of the educational program for students with physical impairments at Helwan University. **Research design:** A quasi-experimental research design was used to conduct this study. **Sample:** Purposive sample includes 118 students, who suffering from physical impairment. **Setting:** Excellence center for students with disabilities, three faculties (College of Commerce, college of literature, and the college of law), and emergency clinics at Helwan University. **Tool for data collection:** One tool, structured interviewer questionnaire, included four parts, **1st part:** included socio-demographic characteristic of students with physical impairments, **2nd part:** Past and present history of students with physical impairments, **3rd part:** Knowledge of students about physical impairments, **4th part:** Students reported practice exercises. **Results:** 80 % of study subjects had a good total knowledge post educational program. 63.6 % of the studied subjects had insufficient reported practice about exercise pre-educational program and improved to 98.3% post educational program. **Conclusion:** The study concluded that improvement in the student's total knowledge about physical impairments post educational program than pre-educational program. Additionally, there was statistically significant improvement in the student's total reported practice exercises post applying educational program than pre- educational program. **Recommendations:** Continuous educational program about students with physical impairments in other universities to generalize the results.

Key words: Physical Impairments, Educational Program and Students.

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Introduction

Impairment is a problem in body function or structure, an activity limitation is a difficulty encountered by a student in executing a task or action, while a participation restriction is a problem experienced by student involvement in life situations. Thus, disability is a complex phenomenon, reflecting an interaction between the features of a student's body and the features of the society in which students lives (Guralnik, et al., 2022).

A physical impairment is a substantial and long-term condition affecting a part of a

student's body that impairs and limits their physical functioning, mobility, stamina, or dexterity. Physical impairment is a disability that limits a student's physical capacity to move, coordinate actions, or perform physical activities. It is accompanied by difficulties in one or more of the following areas: physical and motor tasks, independent movement; performing daily living functions. Physical

impairments can be temporary or permanent, fluctuating, stable, or degenerative, and may affect parts of the body or the whole of the body (*Mor, et al., 2022*).

More than one billion people around the world, 15 %, suffer from at least one type of disability. According to the Global Health Survey, 785 million people aged 15 or older, 15.6 % of the population, have some form of disability (*Branch & Jette, 2021*). 10.67% of students who are five years and older, have disabilities ranging from some difficulties to cannot do any activity at all, while 2.61% of Egyptians, who are five years and older have severe disabilities (*According to the Central Agency for Public Mobilization and Statistics (CAPMAS), 2020*).

Students in university suffering from physical impairment and loss of physical capacity results in having a reduced ability, or inability, to perform body movements such as walking, moving hands and arms, sitting and standing as well as controlling muscles. A physical disability does not necessarily stop from performing specific tasks, but makes students more challenging. Daily tasks take longer to complete, such as getting dressed or difficulty gripping and carrying things (*Branch & Jette, 2022*).

It is important that defining physical disability isn't the physical condition, but how it impacts daily life, as the ability to carry out work activities. A student may be born with a physical disability or acquire it in life due to an accident, injury, illness, as a side effect of a medical condition. Examples, of physical disability include cerebral palsy, multiple sclerosis, epilepsy, Carpal tunnel syndrome, amputations, and spinal cord injuries (*Manton, 2022*).

Types of physical impairments and how to impact a student's daily life cause physical impairment to vary. Physical impairments can be caused by either hereditary, congenital, mobility impairment, visual impairment, hearing loss, or acquired reasons. A student with a hereditary or congenital physical impairment has had the condition since birth

and developed the condition because of inherited genetic problems, and issues with muscle cells the person suffered an injury during birth. A student can acquire a physical impairment due to a number of reasons. These can be severe accidents, brain injuries, infections, diseases, and as a side effect of disorders and other medical conditions, such as stroke and dementia (*Reuben & Siu, 2020*).

Educational program means plan instructions, guidelines or principles by which students and groups of students learn it to change or behave in a manner conducive to the promotion, maintenance, or restoration of health. Students with physical impairments are best served by community health nursing when included all community health programs and activities as: education and counselling programs that promote physical activity, improve nutrition or reduce the use of tobacco, alcohol or drugs; and blood pressure and cholesterol assessment during annual health exams, and screening for illnesses such as cancer, diabetes, and heart disease. Students with disabilities need community health programs and health care services for the same reasons anyone to be healthy, active, and engaged as part of the community (*Shakoor, et al., 2019*).

Community health nurses recognize that the psychological well-being of the physically impaired students has been linked to relationships and the ability to find meaning in life as the importance of education and lifelong learning. There are many levels of impairment and inclusive personalized support that embrace both technologies and positive human interaction is required (*Sonn, et al., 2020*).

Significance of the study

According to the United Nations Development Programmer, Egypt, there are 12 million persons with disabilities and the impact of disability extends to the families of the persons, there are about 36 million persons who are affected by disability, which makes up 35% of the total population in Egypt (*WHO, 2020*). The Ministry of Higher Education is aware of the importance of embracing students

with special needs and includes them in society as active citizens able to make many achievements (*Rehab, 2018*).

Students with a physical impairment have difficulty managing the distance between different learning activities and take a long time to ask or answer questions (**University of Cambridge, 2020**). So, physical impairment has been included in various targets as a crosscutting issue in the 2030 Agenda for Sustainable Development. Efforts need to be stepped up to ensure that the goals and targets will be achieved for students with disabilities (**United Nations New York, 2019**).

The significance of exploring recent policy developments in Egypt is to address the support needs of disabled students. Community health nurses need to evaluate the ability of students with impairments to use the appropriate educational program and make modifications in teaching strategies to provide high-quality health care for them (**National League for Nursing, 2020**).

Aim of the study

This study aims to evaluate the effect of an educational program for students with physical impairments at Helwan university through:

- 1- Assessing the students' knowledge and reported practice to detect a student's educational needs.
- 2- Designing and implementing an educational program.
- 3- Evaluating the effect of an educational program.

Research Hypothesis

The educational program will improve the students' knowledge and reported practice regarding physical impairments.

Subjects and Methods

Research design:

A quasi-experimental research design was conducted to achieve the study.

Setting:

This study was conducted with the students at the Excellence Center for Students with Disabilities, the three faculties (College of Commerce, college of literature, and the college of law), and the emergency clinics at Helwan University.

Sample:

Purposive sample was used in this study.

Sample size:

Students suffering from physical impairments in three faculties were conducted in the study. 54 students will be selected from the College of Commerce, 45 students will be selected from the college of literature, and 19 students will be selected from the college of law. The total number of students was 118 students, according to the following inclusion criteria: students' age from 18 to 26 years and students diagnosed with physical impairment, and exclusion criteria: students diagnosed with any other types of impairment.

Tool of data collection:

Data for this study collected by using the following one tool:

Tool: Structured interviewer questionnaire:

Data for this study collected by using a structured interviewer questionnaire sheet which designed by the researcher after reviewing related literature. It included four parts:

Part I: Socio-demographic characteristics of students with physical impairments consisted of 12 items which are age, gender, grade, place of residence, living with, occupation, monthly income, number of family members, number of rooms, crowding index, performance, and recreational activities.

Part (II): Medical history: Its divided into 2 sub-items:

a- Past medical history of Family members: It included 14 questions such as: Problems during delivery; Related mother and father; types, causes, time, and location of disabilities

b- Present medical history of Family members: It included 3 questions: Family members with hereditary problems, chronic diseases, and physical disability.

Part III: Student's knowledge regarding physical impairment (pre – post format) included 15 closed ended questions as: concept of motor disability, concept of a motor handicap, causes of motor disability, types of movement disability, factors affecting movement disability, influencing factors of the physical impairment, ways of overcoming the problems, methods of prevention, medication, meaning of exercises, benefits of exercises, sources of knowledge, types of exercises, uses of exercises, contraindications of exercises, and time of exercises.

Scoring system: the answer score 2 points for a complete, correct answer, 1 point for an incomplete, correct answer and zero point to incorrect answer.

The total scores for student's knowledge regarding physical impairment divided into three levels as the following:

- Poor knowledge < 50 % (< 15 score)
- Average knowledge 50 -70 % (15:21 score)
- Good knowledge > 70% (> 21 score).

Part IV: Student's reported practices questionnaires about exercises (pre and post questionnaire): It included 48 questions:

General instructions: as perform these exercises once a day, do each exercise 10 times or move to a resistance point and hold for 30 seconds, start slowly, do each exercise only a few times and build up gradually.

Head and neck exercises: as keep head and back straight and shoulder muscles tight, lower the chin towards the chest and hold for 15-30 seconds, relax and raise head slowly, with the head tilted back towards the back, so that level of view is up, with stability for 10 seconds, repeat these exercises daily, tilt head on right shoulder and try to touch the ear.

Shoulder and elbow exercises: as look forward, pull right upper shoulder forward and left upper shoulder back. Lift the shoulders up

to improve range of motion and relax the neck and muscles along the spine, As look forward, pull right upper shoulder forward and left upper shoulder back.

Forearm and wrist exercises: as wrist extension and extension exercise: It is an exercise that relies on bending and extending the palm of the hand down and then returning to the straight position, provided that the bend is for a period of between 10:15 seconds, repeat three times.

Hand and finger exercises: as gentle fist your hand, keeping the thumb above the fingers, stay in this position for 30-60 seconds, spread your fingers and separate them from each other and repeat this exercise at least 4 times in the hands.

Thigh and knee exercises: as hold the leg by placing one hand under the knee bend, with the other hand, hold the heel to stabilize it, lift your knees and bend them toward the chest with your patella (knee cap) pointing toward the ceiling.

Ankle and foot exercises: as exercise flexing and straightening the toes, with one hand, hold the foot just below the toes, and gently move all or all toes back and forth.

A scoring system for the student's reported practice regarding physical impairment divided into two levels as the following:

- Sufficient reported practices $\geq 60\%$ (≥ 80 points).
- Insufficient reported practices < 60 % (< 80 point).

Operational items: These include preparatory phase, pilot study content validity, content reliability and field work.

Preparatory phase

It included reviews of related literature and theoretical knowledge of various aspects of the study using books, articles, internet and magazines to develop tools for data collection.

Pilot study:

A pilot study was carried out with 10 % of students (15 students) to test the clarity,

feasibility and applicability of the questions in the tool. In the main study sample He results of the pilot study helped the researchers in refining the interview questionnaire and to schedule the time framework. The participants of the pilot study were included because there wasn't any modification in the tool.

Tool validity and Reliability:

A) Content Validity:

The revision of the tool for clarity, relevance, comprehensiveness, understanding and applicability was done by a panel of five experts from the community health nursing specialty from faculty of nursing at Helwan University to measure the content validity of the tool and the necessary modification done accordingly through add some question to assess the students' knowledge about physical impairment. All recommended modifications were applied.

B) Tool Reliability:

Reliability was applied by the investigators for testing the internal consistency of the tool, by administration of the same tools to the same subjects under similar conditions two times. Answers from the repeated testing were compared (Test- re-test reliability was 0.82 for knowledge) and Cronbach's Alpha reliability was 0.890 for repeated practice.

Field work:

Interviewing the students was carried out after the investigator introduced herself and explained the nature and the purpose of the study to the participants and reassuring the students about the confidentiality of the collected data. Formal consent was taken from the students in data collection after the researchers explained the title and the aim of the study.

The study work was carried out within 9 months from the beginning of October 2021 to the end of June 2022 including one month for pilot study that included in the main sample, 2 days/ week (Monday and Wednesday) from 9 to 12 am.

Data was collected by using structured interview questionnaire sheet through 6 months from the beginning of October 2021 to the end of March 2022. The researcher collected data 2 days/ week (Monday and Wednesday) from 9 to 12 am at the previously mentioned setting.

The questionnaires were completed by the researcher, each one tacked about a half hour, and each visit met about three students.

An Educational Program for Students with Physical Impairments at Helwan University

An educational program construction consists of five phases:

Phase I: Program development

Review of the past and current local, national and international related literature relevant to students with physical impairments using text books, articles and scientific magazines were made by the researcher in order to get a clear picture of all related aspects to the problem of the research, as well as, to develop the program content. The program content was revised and validated by thesis supervisors in Faculty of nursing, Community health nursing department, Helwnn University.

Phase II: Assessment

By using a pretest questionnaire to assess the students' knowledge about physical impairments and reported practice exercises. The data obtained from students during this phase was considered the basics of the content of the health education. Patients were assured that the obtained information confidential, and used only for the purpose of the study.

Phase III: Planning

Based on the results obtained from the assessment phase, the investigator designed the health education program session contents according to the student's knowledge about physical impairment and reported practice exercises. The contents emphasized on knowledge about physical impairments such as the meaning of the physical impairment, meaning of disabled person, causes of the

physical impairment, types of the physical impairment, influencing factors of the physical impairment, ways of overcoming the problems, methods of prevention and students reported practice exercises.

Phase IV: Implementation

After developing the educational program contents, actual field work for interviewing the students was carried out in an Excellence center for students with disabilities, three faculties (College of Commerce, college of literature, and the college of law), and emergency clinics at Helwan University.

Program implementation based on conducting sessions planned by using different educational methods and media in addition to the specific structured booklet based on the assessed needs.

An educational program was carried out within six months, two days / week (Monday and Wednesday) from 9 to 12 am. The students were divided into six groups, each group contained about twenty students. The educational program was applied through five sessions, each session took about 45-60 minutes.

First session started by greeting students, orientation to the program and its aim of using simple words to reduce levels of anxiety and develop a sense of trust. Students were oriented about program session time, duration, place, and content. The researcher introduced herself and explained the nature and the purpose of the study to the participants and reassuring the students about the confidentiality of the collected data.

Second session started with a Summary about the previous session and the objectives of the new session. The investigator explained the overview of physical impairments, definitions of physical impairment, and disability.

At the beginning of the **third session**, the investigator gave feedback about the previous sessions and the objectives of this session. Third session included types, and causes of

physical impairments; and overview of exercises for physical impairments.

The investigator started the **fourth session** with group discussion by summary about the previous sessions. The investigator explained types, importance and general instruction of exercises. Upper limb exercises were included in this session. At the end of the session investigator allowed students to ask questions.

Last session stated summary about all three sessions and objectives of the present session. Lower limb exercises were explained then post-test was done to evaluate the effect of the educational program on the level of the student's correct knowledge and repeated practice.

Education Program Booklet:

A booklet including all content of the program, it was designed by the investigator and given to students as an educational reference during and after the program implementation. Contents of booklet including (meaning of the physical impairment, meaning of disabled person, causes of the physical impairment, types of the physical impairment, influencing factors of the physical impairment, ways of overcoming the problems and methods of prevention, medication, meaning of exercises, benefits of exercises, sources of knowledge, types of exercises, uses of exercises, contraindications of exercises, and time of exercises. Practical exercises include general instructions, head and neck exercises, shoulder and elbow exercises, forearm and wrist exercises, hand and finger exercises, thigh and knee exercises, and ankle and foot exercises.

Phase V: Evaluation

This phase aimed to evaluate the level of improvement in students' knowledge and reported practices after applying an educational program for students with physical impairments. Post-test was made immediately at the end of the sessions on educational program using the same tool of the pre - test questionnaire.

Ethical consideration:

Official permission to conduct the proposed study will be obtained from the Scientific Research Ethics Committee. Participation in the study is voluntary and subjects will be given complete full information about the study and their role before signing the informed consent. The ethical considerations will include explaining the purpose and nature of the study, stating the possibility to withdraw at any time, the confidentiality of the information where it will not be accessed by any other party without taking the permission of the participants. Ethics, values, culture, and beliefs will be respected.

Statistical Item:

Upon completion of data collection, data computed and analyzed using Statistical Package for the Social Science (SPSS), version 24 for analysis. The P value set at 0.05. Descriptive statistical tests as numbers, percentage, mean, standard deviation (SD), will be used to describe the results. Appropriate inferential statistics such as “F” test or “t” test used as well.

Significance of results:

- When $P > 0.05$, it is a statistically insignificant difference.
- When $P < 0.05$, it is a statistically significant difference.
- When $P < 0.01$ or $P < 0.001$, it is a statistically highly significant difference.

Results

Table (1): Reveals that, 52.5 % of the studied subjects were male, while, 47.5 % of them were female. 51.7 % of them aged from 20 to 21 years old and 44.9 % of them were in grade second. Moreover, 72.0 % of them lived in urban residence, 94.1% of the studied subjects were living with family and 57.62 % of them had not sufficient monthly income for basic needs.

Table (2): Clarifies that, 52.5 % of study subjects had not suffered from problems during

delivery, 90.7 % of study subjects had a physical disability. Moreover, 47.5 % of studied subjects had a disability from birth, 47.5 % of studied subjects disability occurred during birth and 39.0 % of studied subjects had a physical disability in lower limbs.

Figure (1): Shows that, 41 % of the studied subjects had average of the health status, 29 % of the studied subjects had good of the health status, 11 % of the studied subjects had poor of the health status.

Table (3): Shows that, statistically significant difference between pre versus post program implementation in all items regarding specific knowledge about physical impairments with $p < 0.000$. In preprogram implementation (78.0 %, 65.3 %, 61.9 %) of study subjects had incorrect answered about the types of the physical impairment, meaning of the disabled person and influencing factors of the physical impairment respectively compare to (10.2 %, 1.7 %, 5.9 %) respectively post program implementation.

Table (4) Shows that, there was a statistically significant improvement in studied subject's reported practice regarding general instructions on post- educational program than pre- educational program in all reported practice items where $P=0.00$.

Figure (2): Illustrates that, 63.6 % of the studied subjects had insufficient reported practices in the pre- educational program and that insufficient reported practices were improved post the educational program where, it became only 1.7 % in the post- educational program. Additionally, the percentage of the studied subjects who had sufficient reported practices were became 98.3%.

Table (5): Shows that, there were positive relation studied subjects' total knowledge regarding physical impairments and their total reported practice. Moreover, there was a Highly statistically significant improvement in studying subjects' total knowledge and total reported practice at $P=0.00$.

Table (1): Number and Percentage Distribution of the Studied Subjects according to Socio-demographic Characteristics (n=118).

Items	No.	%
Age		
≤ 19	13	11.0
20 – 21	61	51.7
22 – 23	24	20.3
≥ 24	20	16.9
Mean ± SD	21. 32 ± 2. 04	
Gender		
Male	62	52.5
Female	56	47.5
Grade		
First	22	18.6
Second	53	44.9
Third	15	12.7
Fourth	28	23.7
Continue Table (1)		
Residence		
Rural	33	28.0
Urban	85	72.0
Living		
Alone	7	5.9
With family	111	94.1
Work		
Yes	14	11.9
No	104	88.1
Monthly income		
Insufficient	68	57.62
Sufficient	40	33.89
More than sufficient	10	8.47
Sports		
Yes	49	41.5
No	69	58.5
Recreational activities		
Yes	57	48.3
No	61	51.7

Table (2): Number and Percentage Distribution of the Studied Subjects according to their Past Medical History (n= 118).

Past medical history	No.	%
Problems during delivery		
No	62	52.5
Yes (unidentified)	33	28.0
Prenatal hypoxia	14	11.9
Shoulder dislocation	5	4.2
Premature delivery	4	3.4
Related mother and father		
Yes	42	35.6
No	76	64.4
Type of disability		

Past medical history	No.	%
Physical	107	90.7
Mental	11	9.3
Cause of disability		
Birth	56	47.5
Accident	28	23.7
Disease	34	28.8
Time of disability		
Since birth	56	47.5
Before the age of 15	44	37.3
After the age of 15	18	15.3
Location of disability		
Brain	12	10.2
Upper limbs	19	16.1
Lower limbs	46	39.0
Right side	8	6.8
Left side	4	3.4
Whole body	29	24.6

Figure (1): Percentage Distribution of the Studied Subject is regarding their Health Status (n=118).

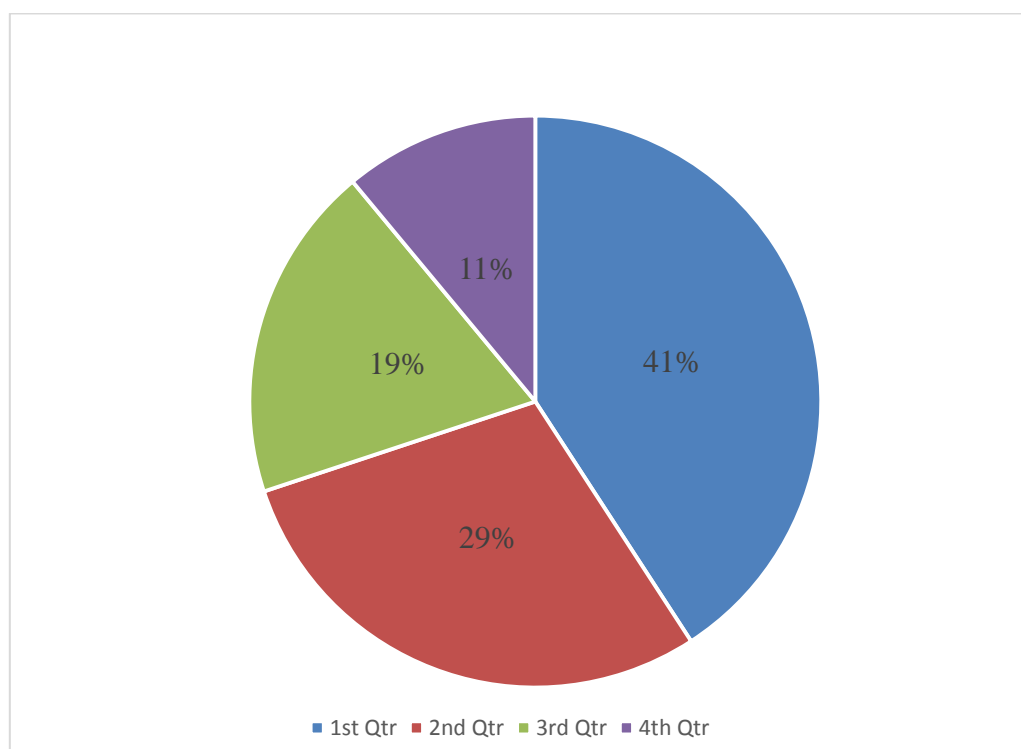


Table (3): Statistical Differences of Studied Subjects at Pre and Post Educational Program are regarding to their Knowledge about Physical Impairments (n=118).

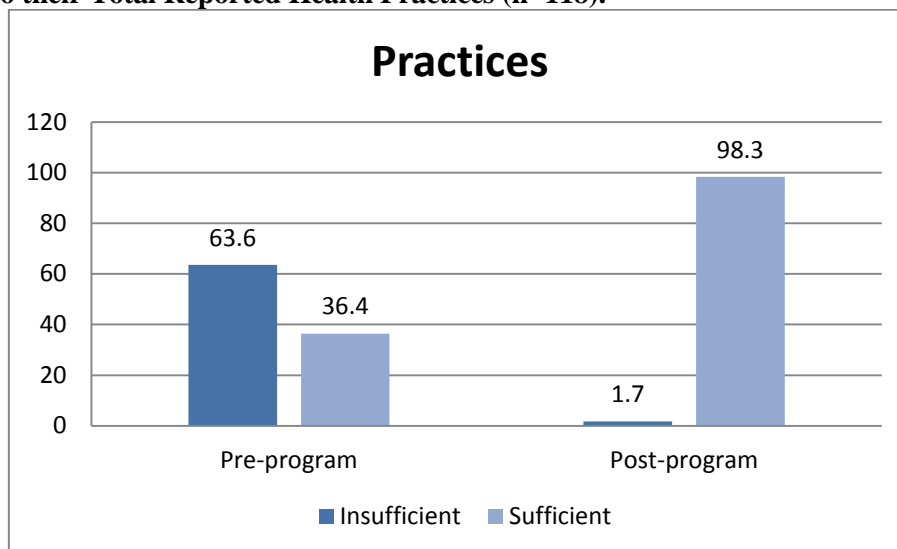
Pre-program						Post-program						X ² (Sig.)	(p-value)
Knowledge about Physical Impairments													
Incorrect		Partially correct		Correct		Incorrect		Partially correct		Correct			
No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
Meaning of the physical impairment													
64	54.2	41	34.7	13	11.0	6	5.1	29	24.6	83	70.3	101.156	(0.000**)
Meaning of disabled person													
77	65.3	32	27.1	9	7.6	2	1.7	55	46.6	61	51.7	115.912	(0.000**)
Causes of the physical impairment													
26	22.0	92	78.0	0	0.0	0	0.0	34	28.8	84	71.2	60.364	(0.000**)
Types of the physical impairment													
92	78.0	26	22.0	0	0.0	12	10.2	13	11.0	93	78.8	158.872	(0.000**)
Influencing factors of the physical impairment													
73	61.9	45	38.1	0	0.0	7	5.9	24	20.3	87	73.7	147.841	(0.000**)
Ways of overcoming the problems													
67	56.8	51	43.2	0	0.0	8	6.8	17	14.4	93	78.8	156.413	(0.000**)
Methods of prevention													
77	65.3	38	32.2	3	2.5	10	8.5	17	14.4	91	77.1	141.999	(0.000**)

** Highly statistically significant at p≤0.01

Table (4): Statistical Differences of Studied Subjects at Pre and Post Educational Program regard to their General Instructions (n=118).

Practices distribution										X ²	(p-value)
Pre-program					Post-program						
Not done		Done			Not done		Done				
No.	%	No.	%	No.	%	No.	%	No.	%		
Perform these exercises once a day											
56	47.5	62	52.5	14	11.9	104	88.1	35.827	(0.000**)		
Do each exercise 10 times or move to a resistance point and hold for 30 seconds											
59	50.0	59	50.0	11	9.3	107	90.7	46.794	(0.000**)		
Start slow, do each exercise only a few times and build up gradually											
50	42.4	68	57.6	9	7.6	109	92.4	37.989	(0.000**)		
Try to achieve full motion by moving until you feel a slight stretch, not forcing the movement											
44	37.3	74	62.7	8	6.8	110	93.2	31.967	(0.000**)		
Move only to the point of resistance and do not force the movement											
57	48.3	61	51.7	8	6.8	110	93.2	50.979	(0.000**)		
Keep the limbs supported throughout the movement											
50	42.4	68	57.6	9	7.6	109	92.4	37.989	(0.000**)		
Move slowly											
60	50.8	58	49.2	6	5.1	112	94.9	61.335	(0.000**)		

** Highly statistically significant at p≤0.01

Figure (2): Percentage distribution of Studied Subjects at Pre and Post educational program regarding to their Total Reported Health Practices (n=118).**Table (5): Relation between Total Knowledge of Studied Subjects and their Total Practice Post-Educational Program (n=118).**

	Mean \pm SD	Range	Insufficient		Sufficient		X ²	(p-value)
			No.	%	No.	%		
Knowledge								
Pre-program	8.05 \pm 2.62	3-13	118	100.0	0	0.0	199.125	(0.000**)
Post-program	21.91 \pm 2.16	13-26	10	8.5	108	91.5		
Practices								
Pre-program	21.62 \pm 17.28	0-48	75	63.6	43	36.4	102.724	(0.000**)
Post-program	41.97 \pm 5.52	11-48	2	1.7	116	98.3		

** Highly statistically significant at $p \leq 0.01$

Discussion

Physical impairment is a physiological disorder or condition, cosmetic disfigurement, or anatomical loss impacting one or more body systems. Examples of body systems, include neurological, muscle (the system of muscles and bones), respiratory, cardiovascular, digestive, lymphatic and endocrine. It goes on to say a "mental impairment is a mental or psychological disorder. Examples include intellectual disability, emotional or mental illness, and organic brain syndrome (Hawkes & Ruel, 2022).

Part I: Demographic characteristics of the students.

The present study finding revealed that more than half of the study subjects were male and this finding was similar with Pollock, et al., (2022), who conducted published study in

Australia under the title of " Physical Impairment and Safety on Australian Health: Peoples' Perceptions of Major Hazards, who reported that 54.1 % of studied subjects were males.

Concerning age, more than half of the study subjects had 20 to 21 years, and this finding was in agreement with Mary, et al., (2021), who conducted published study at Midwestern entitled as Knowledge, Attitudes, and Practices for nurses with Physical Impairments Students. In Ohio City, Midwestern, who reported that 52.3 % of studied subjects were 20 to 21 years. From a researcher's point view, this might be due to some of the students' aged between 21 to 25 years is in the university age.

The present study finding revealed that more than two thirds of study subjects were living with family and less than ten percent was living alone. This result was in accordance

with **Saed, et al., (2020)**, who conducted published study at Palestine entitled as " Knowledge and practices of knowledge and practices for Nurses use among Physical impairment in the West Bank, Palestine, who reported that 91.2 % and 8.8 % of studied subjects were living with family and living alone, respectively. From a researcher's point view, this might be due to the government raises family awareness towards people with special needs and how to provide them with all means with the support of the state.

Concerning the grade of education of the present study revealed that more than two third of studied subjects had in grade two this finding was similar with **Hagel, et al., (2022)**, who conducted a published study in Vietnam entitled as, Prevention of Hazards toward Physical Impairments: an evaluation of an education-based intervention. Injury Prevention in Southeast Asia in Vietnam, conducted a cross-sectional study directed among the people with physical disability in Vietnam and founded that 45 % participants had in grade two.

Concerning the monthly income of the present study revealed more than half of studied subjects had insufficient monthly income and this finding was in agreement with **Bassi, et al., (2021)** who conducted a published study at Kaduna State in Nigeria entitled as " Risk Factors for Physical Impairments and Accommodate with Disability, Kaduna State, Nigeria, Who Stated that 55.2 % of study subjects were insufficient monthly income. From a researcher's point of view, this might be due to increase in prices and the large number of basic needs for people with special needs and the large number of requirements.

The present study finding revealed that more than half of the study subjects were family members from 5 to 6 members in the family. This result was in accordance with **Mulu, et al., (2021)** who conducted published study at Northwest Ethiopia entitled as " Knowledge, Attitude, and Practices among toward People with Physical Disability,

Northwest Ethiopia, who reported that 54.2 % of studied subjects were family members over 5 members in the family. From a researcher's point view, this might be due to the family works to increase the number of births, because children are considered a source of strength and support for them in life.

The present study finding revealed that more than two thirds of study subjects weren't family members with physical disability in the family. This result was in accordance with **Parry, (2021)** who conducted published study at Viet Nam entitled as "The rehabilitation of physical Impairment people in, Viet Nam" who reported that 78.2 % of studied subjects weren't family members with physical disability in the family. From a researcher's point view, this might be due to increased families' awareness of the causes that leads to disability. The state's interest in pregnant women and helping them to give birth safely.

Part II: Medical history of the students with physical impairment:

Regard the past medical history for students the results of the present study showed that more than half of studied subjects hadn't problems during delivery and this finding was the same direction with **Heitor & Pellegrina, (2022)** who conducted a published study in Brazil under the title ? Productivity for People with Physical Impairments: Evidence from Brazil , who reported that, 55 % of studied subjects hadn't had problems during delivery. From a researcher's point of view, this might be due to increasing awareness and using modern methods during the birth mothers.

Concerning the relation between mother and father, the results of the present study showed that more than half of studied subjects were recently not had a relation between mother and father and this finding was the same direction with **Michiel, et al., (2020)** who conducted a published study in Ethiopia under title " Reducing the Hazards between Husband in Ethiopia: Decomposition and policy simulation " who reported that 55.2 %

of studied subjects were recently not relation between parents. From a researcher's point of view, this might be due to reduce bad habits as consanguineous marriage that leads to the emergence of genetic diseases and problems among family members.

Concerning the type of disability, the present study results delineated that more than two third of studied subjects had physical disability result from agriculture work to farmer and this finding agreement with **Aparna & Gopal, (2020)** who conducted published study at Indian under title " Physical Impairment related Hazards in Elderly People " who reported that, 89 % of studied subjects had actual injures and hazards result from agriculture work. From a researcher's point of view, this might be due to severe accidents, brain injuries, infections, diseases and as a side effect of disorders and other medical conditions, such as a stroke and dementia.

Also, the present study revealed that less than quarter of studied subjects had location of disability in whole body and this finding was agreement with **Alene & Manyong, (2021)** who conducted published study at northern Nigeria under title "Physical Impairment and its Location in northern Nigeria" who reported that, 23.2 % of studied subjects had location of disability in whole body. From a researcher's point of view, this might be due to arthritis is the most common cause of disability for adults. It often worsens as someone gets older. If someone has another disability, they also are more likely to have arthritis.

The presented study showed that more than two third of studied subjects not had rehabilitation programs for disability and this finding agreement with **Deng, et al., (2021)** who conducted published study at China under title of "Impact of rehabilitation programs on people with Physical Impairment in China" who reported that 79 % of studied subjects not had rehabilitation programs for disability. From a researcher's point of view, this might be due to their take a long time and People think it gives less efficiency.

Before program implementation student's knowledge level of the questionnaire isn't homogenous, and student's knowledge seemed to be haphazard and not based on the scientific background, this might be, there is little or no accommodation with physical impairment management education program provided to study students in Helwan university before.

Part III: Students Knowledge and practice about Physical Impairments Pre and Post Educational Program (Answered research hypothesis): The educational program will improve the students' knowledge and reported practice regarding physical impairments.

The present study showed that less than quarter of studied subjects had correct answer about meaning of physical impairment regarding pre physical impairment health educational program and this finding was in accordance with **Maanda, et al., (2023)** who conducted published study at Vhembe District in South Africa under title " The Determinants of hazards Facing People with Physical Impairment, South Africa " who reported 12.1 % of studied subjects had correct answer about meaning of physical impairment. From a researcher's point of view, this might be due to decreased awareness of people with physical disability.

The present study displayed more than two third present of studied subjects had corrected answer about types of the physical impairment post physical impairment educational program and this finding was disagreement with **Javier, et al., (2023)** who conducted published study at Spanish under title of " The Role of government toward People with Physical Impairments " who reported 65 % of studied subjects had correct answer. From a researcher's point view, this might be due to major of them didn't important to identify different physical disabilities.

As regard students' knowledge about ways of overcoming the problems post physical impairment educational program more than two third of studied subjects had correct answer about ways of overcoming and this

finding was agreement with **Jeremiás & Tamás (2023)** who conducted published study at Brazil under title of " Effects of Physical Disabilities about Family Income " who reported 79 % of studied subjects had correct answer and complete. From a researcher's point view, this might be due to people know how to prevent physical impairment.

Also, as regard students' knowledge about physical impairment post educational program more than half of studied subjects had correct answer about causes of the physical impairment and this finding was agreement with **Xueshen, et al., (2023)** who conducted published study at Indonesia under title of " Concept of Physical Impairment and Family Perception " who reported 70.2 % of studied subjects had correct answer and complete. From a researcher's point view, this might due to physical impairment educational program be more effective and people understand causes lead to impairment.

Also, as regard students' knowledge about physical impairment post educational program more two third of studied subjects had correct answer about benefits of exercises related to physical impairment and this finding was agreement with **Ghenghesh, et al., (2019)** who conducted published study at Mediterranean north Africa under title of " Concept of Physical Impairment and Society Role toward Disability People " who reported 78.2 % of studied subjects had correct answer and complete. From a researcher's point view, this might due to physical impairment educational program be more effective and people understand the benefits of exercises related to physical impairment.

The present study illuminated more than two third of studied subjects had done exercises once a day post applied of and this finding was similar with **Andreísa, et al., (2023)** who conducted published study at Tanzania under title " Important of Physical Activity to Disability People " who reported 97.6 % of studied subjects that farmer always stores chemicals in closed and safe places. From a researcher's point view, this might be

due to help people with chronic, disabling conditions improve their stamina and muscle strength. Reduces symptoms of anxiety and depression, improves mood, and promotes general feelings of well-being. Helps control joint swelling and pain associated with arthritis.

As regard student's practice about head and neck exercises post physical impairment program more than two third of studied subjects had done step about tilt head on right shoulder and try to touch ear, shoulder and this finding was agreement with **Nembangia, et al., (2022)** who conducted published study at Cameron under title of " Exercises for Disability People " who reported 80.1% of studied subjects had done this step. From a researcher's point view, this might be due to reduce neck and back pain, and releasing tension and stiffness.

Concerning the student's practice about shoulder and elbow exercises post physical impairment program more than two third of studied subjects had done step about extend the elbow up, back and down and this finding was agreement with **Mustapha, et al., (2022)** who conducted published study at Kuwait under title of " Disability People and Exercises in Kuwait " who reported 79.5% of studied subjects had applied this step. From a researcher's point view, this might be due to protect bones, supports other exercises, reduces injury risk, improves posture, boosts heart health, and lower stress levels.

Also, concerning the student's practice about forearm and wrist exercises post physical impairment program more than two third of studied subjects had done step about use pressure tennis ball exercise and this finding was agreement with **Doss & Tilma (2022)** who conducted published study at Michigan State University under title of " Personal Effective Exercises for Disability People" who reported 78.2 % of studied subjects had correct answer. From a researcher's point view, this might be due to strengthening forearms also increases grip

strength, which is related to upper body strength.

Regarding student's practice about hand and finger exercises post physical impairment program more than two third of a percent of studied subjects had done about gently fist hand keeping the thumb above the fingers and this finding was disagreement with **Ben, et al., (2019)** who conducted published study at Tunisian under title of " Important of Physical Activity to Disability People " who reported more than two third equal 66.3 % of studied subjects had done this step from a researcher's point view, this might be due to help strengthen hands and fingers, increase range of motion, and give pain relief.

Regarding student's practice about thigh and knee exercises post physical impairment program more than two third of a percent of studied subjects had done about place one hand on the thigh and the other hand just below the knee and this finding was agreement with **Vasilis (2022)** who conducted published study at Libya under title of " Important of Physical Activity to Disability People and its Effects " reported more than two third equal 76.9 % of studied subjects had done this step. From a researcher's point view, this might be due to help strengthen the thigh and knee, increase range of motion, and give pain relief.

Part IV: The statistical relation and correlation among study variables.

The present study clarified that there a statistically significant relation was between knowledge and practice post program implementation and this finding supported by **Chiappero (2022)** who reported that there was a significant and direct relation between knowledge and practice. From the researcher's point view, a targeted educational program was needed to promote knowledge of students about physical impairment.

Concerning correlation between total percentage of knowledge and practices post program implementation, the present study show significant correlation between total score knowledge and practice and this finding was

supported with **Samuel, et al., (2022)**, who published study at Mbare Musika and Mutoko, Zimbabwe under title of "Management of Physical Disability People and Rehabilitation in Mbare Musika and Mutoko, Zimbabwe " reported that there was significant correlation observed between health of people to prevent physical impairment and knowledge and practices. From a researcher's point view, this might be denoted to importance application prevention guideline program about physical impairment prevention on people.

Regarding relationship between total knowledge and student's demographic characteristics preprogram implementation, the present study showed no significant relation between them and this finding was in agreement with **Leonel (2022)** who reported no statically significant relation between total knowledge and student's demographic characteristics preprogram implementation. In addition, this finding in accordance with **Sean (2022)**, who reported non-significant relation between total knowledge level among the studied subjects and demographic characteristics.

Conclusion:

Based on the present study and research hypothesis, it can be concluded that:

There was a marked improvement in the student's total knowledge about physical impairment post educational program than pre-educational program. Additionally, there was statistically significant improvement in student's total reported practices as range of motion (ROM) and exercises post applying health educational program than pre-educational program.

Recommendations:

Based on the findings of the present study, the following recommendations are suggested:

- Continuous health, educational program about students with physical impairment in other university to generalize the results.
- Encourage students to make group discussion regarding physical impairment and regular

exercises to exchange information about rehabilitation centers under observation from the community health nurse.

- Make posters or banners about reported practices of physical impairment and put in Helwan university.

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