International Journal of Nursing and Medical Science 2019:8(4) 30-53

IJNMS ISSN: 2454-6674

INTERNATIONAL JOURNAL OF NURSING AND MEDICAL SCIENCE

Nursing Education Health Science Research

PANACEA INTERNATIONAL JOURNAL | PRL PUBLISHER

Original Research Article **Volume 8 Issue 4** **Oct-Dec 2019**

EDUCATIONAL PROGRAM OF DISASTROUS RISK REDUCTION AT PREPARATORY SCHOOLS AT HELWAN DISTRICT

[1]Ayiat Allah Wagdy Farag, [2]Nawal Mahmoud Soliman, [3]Sahar Ahmad Shafik

[1]Assistant Lecturer of Community Health Nursing - Faculty of Nursing - Modern University for Technology and Information

[2]Professor of Community Health Nursing-Faculty of Nursing - Ain Shams University

[3]Professor of Community Health Nursing-Faculty of Nursing - Helwan University

Abstract:

Background: Morethan 400 national disasters take place every year, affecting more than 230 million people and causing an average of almost 75,000 deaths annually **The aim**: The present study aimed to evaluate the effect of educational program of disastrous risk reduction at preparatory schools at Helwan district. **Design:** A quasi- experimental design will be used **Setting:** The study will be conducted at two governmental preparatory schools in El Maasara, Helwan district. **Sample:** A stratified multi-stage cluster random sample of 121 preparatory school students will be used for selection of school students. **Tools:** Data was collected through two tools, 1- structured interview questionnaire to assess demographic characteristics and student knowledge regarding the disaster management plan 2- Observational checklist to assess school environment and the system of dealing with injured personnel in school**. Results:** The results revealed that there was a statistical significant improvement in students total knowledge levels regarding disaster managements at post educational program, compared to pre-program in all knowledge items at p≤0.001, that all two preparatory school had unhealthy environmental related to classrooms, laboratories (no first aid kit), clinics (no emergency supplies) and playground schools. illustrated that there were a highly statistical significant difference between the mean scores of pre & post practice score levels regarding evacuation process post educational program p≤0.001 there were statistical significant positive correlation between students age, father educational levels, place of residence and total knowledge post program scores p≤0.001**. Conclusion:** Themajority of the preparatory school students' had good knowledge and practices scores about disastrous risk reduction after educational program. There were a highly statistically significant difference between total knowledge scores and total practice score among preparatory school students before and after educational program in the selected schools. **Recommendation:**Applying disaster plan in schools on larger scale are needed to obtain more generalization of the results on all Egyptian schools.

Keywords:Educational program, disaster risk reduction planand preparatory schools.

INTRODUCTION:

The school- aged children in Egypt are vulnerable to a range of health risks that may affect them immediately as disasters, accidents disease. These risks may originate as a result of the life style and health status during school age. School health program are vital part of public health services and education ***(Mahmoud et al., 2016).***

In recent century due to human alteration of nature, people around the world have become more vulnerable to numerous types of hazards and disasters. Disasters can occur anywhere and at any time and overwhelms the capability of existing resources to cope with. In the last decade (2006–2015), 6270 disasters have been recorded in five continents resulting in 8,197,666 deaths, 70,597 casualties, and 1,989,866,263,000 dollars economic damage ***(Adedeji and Olaniyan, 2015).***

School is an important agency to reduce disasters risk through knowledge, innovation and education. Teachers and students play crucial roles in the development of a culture prevention and preparedness, because they can transfer knowledge and skills to the family and community. Therefore, the active participation of teachers and students in school disaster safety programmers is desired for moving the world towards a safer living place ***(Ekpo et al., 2015).***

From clinical observation and experience in Egyptian schools, there is no proper disaster management plan in preparatory governmental schools. The disaster plan includes assigned personnel (administrators' personnel& teachers), types of disasters (fires, earthquakes & volcanoes), and detailed information about each disaster. This may lead to be doubled or tripled cases of victims and injuries among these group as well as untrained disaster team. Disaster plan is just a documented paper to accomplish the disaster file in the school (**Abd El-kareem et al., 2014).**

Community nurses have an essential role to keep the community surrounding school safe and healthy even in case of dissenter through her communications. They should play a positive role for orientation of school staff, student for

community resources and facilities that improve their knowledge and practice regarding disaster **(Stanhope &, Lancaster, 2015).**

Community health nursing practice must remain a constant across the national planning framework: prevention, protection, mitigation, response, and recovery.The recognition of public health nurses' specific, population-based skills in times of disaster is an extremely important part of our national capabilities. They are not just acute care replacements or back-up first responders for triage assignments in a mass casualty environment. This is not to say that they cannot do these functions if trained, and, indeed, all health professionals may be called on to stretch into non-routine practice areas in a catastrophic response. In disaster and emergency response, though, it is time for public health nursing to take a stand on its scope of practice and standards**(Clemenstone et al., 2016).**

Aim of the study

This study aims to evaluate the effect of educational program of disastrous risk reduction at preparatory schools of Helwan district through the following objectives:

1. Assess students' knowledge and practices regarding disasters and disaster plan to detect their needs.
2. Develop and implement educational program for students regarding disastrous risk reduction according to their needs.
3. Evaluate the effect of educational program on students' knowledge and practices regarding disastrous risk reduction.

Research Hypothesis:

Educational program will improve preparatory school students' knowledge and practices regarding disastrous risk reduction.

Subject and methods:

The methodology followed in conducting the study was presented under the following four designs: technical, operational, administrative and statistical designs.

I) Technical design:

The technical design of this study includes a description of the research design, setting, subjects and tool of data collection.

1- Research design:

A quasi-experimental design was used to carry out this study.

2- Setting:

The study was conducted at two governmental preparatory schools in El Maasara, Helwan district namely: El Sayeda Khadega preparatory school (850 students) 3 floors building with one small playground and El Maasara Preparatory School (900 students) 2 building (3 floors &2 floors) with one small playground.

Sample:

A stratified multi-stage cluster random sample was used for selection of school students in Al Maasara.

First stage: The total number of governmental preparatory schools in Al Maasara is (3), two were chosen randomly for conducting of the study.

Second stage: One class from third grade (59 students) were selected randomly from El Sayeda Khadega preparatory school. One class third grade (62 students) were selected randomly from El Maasara preparatory school.

Third stage: All school students in the selected classrooms were taken, the total number of students in two schools is 121 according to certain criteria:

1- Their age ranged from 13 to 15 years, which are considered as students and educational program have great benefit for maintenance of their health.

2- They got acceptance letter from their parents to participate in the study.

Tools:

Two tools were utilized in this study

Tool I: A structural interviewing questionnaire was used in the study developed by the researcher after reviewing the national and international related literature. It contained 2 parts:

First part: Concerned with student demographic characteristics such as Age, sex, educational level of parent, occupation and place of residence.

Second part: Concerned with student knowledge regarding the disaster management plan in schools: This sheet includes 4 parts; 1. Knowledge about disaster and disaster management (7 questions), 2. Knowledge about disaster team in school (2 questions), 3. Knowledge about dealing with injured personnel during and after disaster (22 questions) and 4. Knowledge about psychological stress during and after disaster (4 questions)

Scoring system:

The total number of questions was 35 coded as the following:

Correct complete = 2

Correct and incomplete = 1

Incorrect / no answer = 0

Score = (35 questions equal 70 scores)

Total score for knowledge questionnaire tool = 70.

Good knowledge = 43 -70 points (>60%).

Average knowledge = 35 - 42 points (50-60%).

Poor knowledge= 0 – 34.5 points (<50%).

Tool II: Observational checklist will be consisted of two parts:

First part: Included observational checklist regarding schools (2 sections) 1. to assess school environment; classrooms, laboratories, school clinic, playgrounds, and corridors 2. to assess school evacuation (Abd El-kareem et al., 2014).

Scoring system:

The total number of items are 35 coded as the following:

Correct observed practice = 1

Wrong observed practice = 0

Score = (35 items equal 35 scores).

Total score for first part = 35.

Good observed practice = 22-35 points (>60%).

Average observed practice = 17.5-21 points (50-60%).

Poor observed practice = 0-17 points (<50%).

Second part: Included eight subscales: 1. observed practices about wound care, 2. Practices about bleeding care,3. Practices about dealing with unconscious personnel, 4. Practices about dealing with asphyxia personnel 5. Practice about burn, 6. Practice about fracture care, 7. Practice about dealing with besieged person, 8. Practices about the technique of lifting injured personnel (Abd El-kareem et al., 2014).

Scoring system:

The total number of questions are 21 coded as the following:

Done = 2

Not Done = 0

Total score for second part = 42.

Good observed practice = 26-42 points (>60%).

Average observed practice = 22-25 points (50-60%).

Poor observed practice = 0-21 points (<50%).

II- Operational design:

The operational design of this study included the preparatory phase, content validity, pilot study, reliability, filed work and ethical consideration and educational program phases.

A) Preparatory phase:

For full understanding of the research problem and the technique used, the researcher took enough time to review the related literature and theoretical knowledge of various aspects of the study using books, articles, internet and magazines to develop tools for data collection.

B) Content validity:

The tools were revised by 4 juries experts from community Nursing staff (in Helwan & Ain Shams university) who reviewed the tools content for clarity, relevance, applicability comprehensiveness and understandable. All recommended modifications were applied.

C) Tool reliability:

The reliability of the tools was tested by measuring its internal consistency. It demonstrated a good level of reliability with Cronbach's alpha, it was 0.80.

Educational program was developed based on the result obtained from the pre-test questionnaire sheet. The plan of educational program was prepared, implemented, and evaluated the degree of improvement in studied sample in relation to educational program objectives.

A-Pilot study:

A pilot study was conducted on 10 % (21 students) of the total study sample to test and evaluate the clarity, feasibility and applicability of the study tools and time required for completion of each study tools also, pilot study sample was included from the main study sample.

B-Field work:

- A written approval letter was obtained from the Dean of Faculty of Nursing, Helwan University for performing the study in two preparatory schools at Helwan. Written letter should be sent to the school directors including the aim of the study.

- Data were collected within two semesters of (2017-2018) academic year, two days per week (Saturday & Thursday) from 10 Am - 2 Pm and interview the

preparatory school students. A written approval was obtained from students parents after the researcher introduces herself for them, and after explaining the purpose of the study. The study was conducted by the researcher for students by distribution of the tool for them. The sample consists of 121 preparatory school students. They were divided 5 groups, and each group consists of 20 students.

WeeksDays	Saturday	Thursday
First week 10AM: 2 PM	G1 - G2 each group equal 20	G1 –G2
Second week 10AM: 2 PM	G3 – G4 each group equal 20	G3 –G4
Third week 10AM: 2 PM	G5 each group equal 20	G5

D) Educational program conducted through 4 phases:

1. **Preparatory phase:** tools of data collection development: a review of the past & current related literature covering various aspects of disastrous risk reduction was done using available books, periodical articles and magazines.
2. **Assessment phase:** by using pre-testing questionnaire to assess the students' knowledge and practice about disastrous risk reduction.
3. **Planning and implementation phase:** by developing the educational program contents.

   Educational program general objective is to improve the preparatory school students' knowledge and practice about disastrous risk reduction.

   Based on the result of the pre-test questionnaire and observational checklist, the researcher utilized 7 sessions (theory, practice) each session needed for 45 minutes and meeting the students two days per week.

Preparatory school students were divided into 5 groups, and each group consists of 20 students.

Content of the educational program helped every student to be able to: meaning of disaster, enumerate causes, discuss the impact of disaster, principles for dealing with injures during and after disaster, disaster team, disaster process, and apply educational program of disaster management plan including assessment of actions and practices of disaster's team in case of disaster simulation exercise including medical equipment, school environment, dealing with injured personnel, first aid for different types of injuries.

Teaching methods were used; lecture, group discussion, brain storming, simulation, demonstration and re-demonstrations. Also, media were picture, videos and handouts. A booklet and CD were prepared by the researcher.

Educational program tailored to suit preparatory school students' educational needs. The researcher developed Arabic booklet which helped as a guide the students about disaster risk reduction management plan. By the end of each session, the students were informed about the content of the next session and its time.

4. **Evaluation phase:** at the end of all sessions evaluation by post test was applied to to evaluate the effect of educational program to preparatory school students about disaster risk reduction management plan. To evaluate the degree of understanding the program immediately after it for one time only

c- Ethical considerations:

Prior to the pilot study, an ethical approval was obtained from the scientific research ethical committee of Faculty of Nursing, Helwan University. A written informed consent was obtained from each participant. They were assured that anonymity and confidentiality would be guaranteed and the right to withdraw from the study at any time.

3- Administration Design:

Approval to carry out this study was obtained from Dean of Faculty of Nursing, Helwan University and from Cairo Educational Directorate.

IV- Statistical design

The collected data were computerized and statistically analyzed using SPSS program (Statistical Package for Social Science) version 22.0. Qualitative data were represented as frequencies and relative percentages. Chi square test was used to calculate difference between qualitative variables.Quantitative data were expressed as mean ± SD (Standard deviation).

The significance level for all above mentioned statistical tests done. The threshold of significance is fixed at 5% level (P-value). A t-test is used as a hypothesis testing tool, which allows testing of an assumption applicable to a population.

The main result of a correlation is called the correlation coefficient (or "r"). It ranges from -1.0 to +1.0.

Results:

Table (1): showed that 71.9 % aged of student" less than 14 ≥15 years with the mean age 15.4±0.5, the majority of the study sample were females. Regarding father educational level 30.6% were read and write, Regarding the father occupation 41.3 % were official workers. Regarding the mother education 26.5% were read and write, 80.2% of the mothers were housewives.

Table (2) shows that there were statistical significant improvement in students level of knowledge regardingdisaster concept and disaster management at the post educational program, compared to pre program in all knowledge items at p≤0.001.

Table(3) shows that there was a statistically significant improvement in students levels of knowledge regardingdisaster team in schoolsat the post educational program, compared to pre program in all knowledge items at p≤0.001.

Table (4)shows that there were statistical significant improvement in students levels of knowledge regardingdealing with injured personal during disasterat the post educational program, compared to pre program in all knowledge items at p≤0.001.

Figure (1) reveals that, there was statistical significant improvement in students total levels of knowledge regarding disaster managements at the post

educational program, compared to pre program in all knowledge items at p≤0.001.

Figure (1) reveals that, there was statistical significant improvement in Distribution of total score of observational checklist about practices at the post educational program, compared to pre program in all practice items at p≤0.001.

Table (5) revealed that there were statistical significant positive correlation between students age, father educational levels, place of residence and total knowledge post program scores p≤0.001

Table (6)illustrated that there were a highly statistical significant difference between the mean scores of post practice, knowledge score levels and evacuation process p≤0.001

Table (1): Distribution of the studied sample demographic Characteristics (n=121).

Characteristics	No.	%
Age		
- 13≥14	20	11.6
- 14 ≥15	87	71.9
- 15≤	14	16.5
Mean ± SD = 15.4±0.5		
Sex		
- Female	121	100.0
Father education		
- Illiterate	8	5.0
- Read and write	39	30.6
- Secondary	15	9.9
- Diploma	6	29.7
- University and more	32	24.8
Father job		
- Freelancing	26	21.5
- Craftsman	45	37.2
- Official workers	50	41.3
Mother education		
- Illiterate	18	14.9
- Read and write	32	26.5
- Secondary	20	16.5
- Diploma	31	25.6
- Universityand more	20	16.5
Mother job		
- Work	24	19.8
- House wife	97	80.2

Table (2): Distribution of the students' knowledge regarding disaster concept and disaster management pre and post program (n =121).

Knowledge	Pre-program			post -program			Paired t test	P value
	Incorrect	Incomplete	Complete	Incorrect	Incomplete	Complete		
	%	%	%	%	%	%		
• Meaning of disaster	45.5	44.6	9.9	9.9	19.8	70.3	11.742	0.000*
• Disaster management in the school	42.1	57.9	0.0	8.3	29.7	62.0	13.540	0.000*
• causes of disaster	33.9	59.5	6.6	8.3	29.7	62.0	9.796	0.000*
• Disaster effects on human	24.8	62.0	13.2	62.8	35.5	1.7	10.052	0.000*
• Important plan of disaster	10.7	77.7	11.6	5.0	32.2	62.8	8.480	0.000*
• Health task	25.6	73.6	0.8	7.4	27.3	65.3	11.789	0.000*
• Potential injuries	9.0	86.0	5.0	7.4	27.3	65.3	8.748	0.000*

(*) statistically significant at P≤0.001

Table (3): Distribution of the students' pre, and post program knowledge regarding disaster team in schools pre and post program. (n =121).

Knowledge	Pre-program			post -program			Paired t test	P value
	Incorrect	Incomplete	Complete	Incorrect	Incomplete	Complete		
	%	%	%	%	%	%		
Team of disaster	37.2	62.8	0.0	4.1	29.8	66.1	15.057	0.000*
Training program about disaster	100.0	0.0	0.0	0.0	35.5	64.5	37.641	0.000*

(*) statistically significant at P≤0.001

Table (4): Distribution of the students' knowledge regarding dealing with injured personal during disasterpre and post program (n =121).

Knowledge	Pre-program			post -program		Paired t test	P value
	Incorrect	Incomplete	Complete	Incomplete	Complete		
	%	%	%	%	%		
• Emergency service	61.2	33.1	5.7	26.4	73.6	19.288	0.000*
• Evaluation information	69.4	26.4	4.2	29.8	70.2	23.877	0.000*
• Classification	71.9	24.0	4.1	31.4	68.6	19.721	0.000*
• Transport	62.8	35.5	1.7	29.8	70.2	21.534	0.000*
• Classification priorities	62.8	33.9	3.3	31.4	68.6	19.228	0.000*

(*) statistically significant at P≤0.001

Figure (1):Distribution of total score of knowledge pre and post health educational program (n =121).

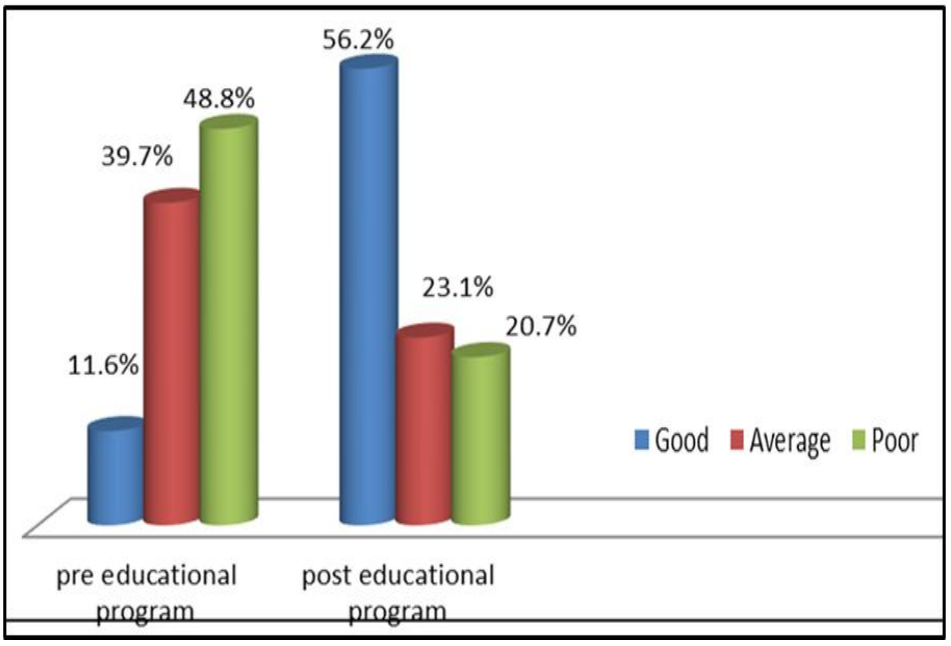

Figure (2): Distribution of total score of observational checklist about practices pre, and post health educational program (n =121).

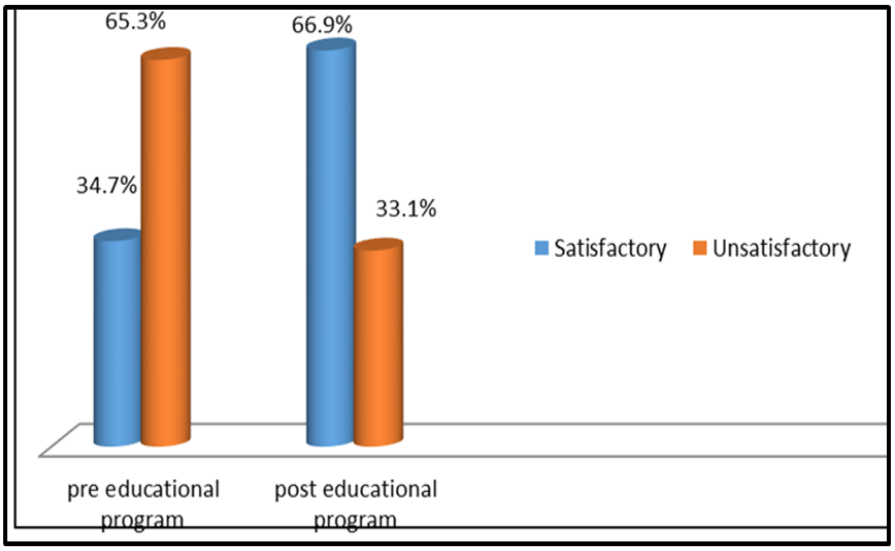

Table (5): Relation between demographic characteristics of students and total knowledge score about pre & educational program (n =121).

Items of demographic characteristics		Total score pre program knowledge			Total post program knowledge		
		Good %	Average %	Poor %	Good %	Average %	Poor %
Age	13-14	25.0	5.0	70.0	70.0	20.0	10.0
	14-15	43.7	13.8	42.5	35.7	42.9	21.4
	> 15	35.7	7.1	57.1	56.3	20.7	23.0
$\times^2$ P value		**5.719 .074**			**102.023 .000****		
Father educational level							
Illiterate		16.7	33.3	50.0	50.0	16.7	33.3
Read and write		16.2	27.0	56.8	50.0	25.0	25.0
Secondary		0.0	58.3	41.7	47.2	27.0	25.0
Diploma		11.1	52.8	36.1	62.2	18.6	18.6
University		10.0	33.3	56.7	63.3	23.0	13.0
$\times^2$ P value		**3.807 0.051**			**16.025 0.008***		
Place of residence							
Rural		25.0	25.0	50.0	75.0	25.0	0.0
urban		10.6	40.7	48.7	54.9	23.0	22.1
$\times^2$ P value		**9.548 .002****			**73.682 .000****		

(*) statistically significant &(**) high statistically significant at P≤0.001

Table (5): Correlation between total knowledge, total practice and students' evacuation process pre and post educational program (n =121).

Item	students' evacuation process			
	Pre program		Post program	
	R	P value	R	P value
Knowledge	- 0.197	0.03	- 0.173	0.058
Practice	- 0.028	0.763	0.353	0.000*

(*) statistically significant & (**) high statistically significant P≤0.001

DISCUSSION:

The present study aimed to evaluate the effect of educational program of disastrous risk reduction at preparatory schools of Helwan district.

According to the demographic characteristics of students, the present study findings indicated that the mean age of students was 15.4±0.5 years (Table 1). This result is similar to a study conducted by Al-jundi,Al-Waeili,(2015) who "assess the level of knowledge of school student regarding immediate emergency management on 220 Jordanian school staff and students "found that, age of students was 15.18 ±4.95 for the study group, compared to13.94±4.50 for control group. As well it is nearly consistent with Ahmed,(2016) who study the implementation of disaster prevention educational programmer on 12 primary school in Kafr-Elzayat in Egypt, represented that mean age of students was 15.17 ±10.8 years. Also, in accordance with **Srinivas, (2016)** study which conducted in India about disaster management program, illustrated that the mean age of students was15.1 ± 9.64 years

Regarding the sex, the study finding revealed that the majority of them were females (Table 1). This study finding is in agreement with a study conducted in Egypt at Ain Shams University **byArafa and Amin, (2015)** also, a study conducted in Nigeria, **by Bernice et al, (2016)** where both studies found that the majority of primary school students female than the male. This may be due to greater number of females than males in the most populations.

Concerning the level of education of parents, the current study result revealed that the more than half of the father and mothers had low level of education read and write only

(Table 2). This goes in line with the high percentage of participants from rural areas, where the education was low. This low level of education would certainly influence student ' knowledge and practices regarding disaster prevention,. In the same line the study conducted in Palestine by **Abu Obaid and Eljedi, (2016)** who studied the preparedness of school in responding to emergencies among schools, found that parents with high level of education have better knowledge and practice regarding disaster prevention,, more aware of suspected complications and have more flexibility to improve their health for student. This study is similar to the study conducted in Egypt at Mansoura city by **Salah (2015)** who study about "application in disaster management plan in primary school in Mansoura city", found that three quarter of the parents had low level of education.. This finding may be due to that in rural areas there is increase in illiteracy rate among parents and low income among families living in the villages.

Regarding the father and mother occupation, the current study revealed that one thirds of fathers workers in official workers and the majority of mothers are housewives (Table 1).This finding was in accordance with**(Sissolak et al,2015),** who studied the evaluated the impact of disaster education course on 2500 student in Jordania and found that, the majority of fathers workers in official workers and on third of mother had housewife.

Regarding to research hypothesis the Educational program will improve preparatory school students' **knowledge** regarding disastrous risk reduction

Current study results revealed that student had poor and incomplete knowledge about the disaster concept and disaster management such as meaning of disaster, causes, important plane of disaster and health task pre-program implementation improved post program. There was statistically significant difference between before and after program implementation. (Table 3). This in accordance with **Abd El Aziz and Abd -El Aal, (2012)** in research about Occupational Program for Improving the student knowledge about disaster management and that the educational program improved students ' knowledge regarding disaster management and its dangerous effect on health but the practices slightly improved after the program implementation. Also, this in accordance with **Shafik & Abed El-Mohsen (2012)** who conducted a study about health educational program to improve student's health in primary school in Giza Egypt. There was statistically significant difference

between before and after program implementation concerning students' knowledge regarding disaster concept and disaster management.

Current study results revealed that there were students had poor and incomplete knowledge about the role of team during disaster the majority of team and all off students had no experience in disaster management pre-program implementation improved post program. There was statistically significant difference between before and after program implementation. (Table 4). This in accordance with **Hu et al. (2013)** More than half of team of disaster reported that there was trained team in emergency situation in all team it's very important. These results supported by **Tuswadi & Hayashi, (2014)** who studied the implementation of disaster prevention education program on 24 preparatory schools in Indonesia and found that, 101 students still have lack of experience related to disaster prevention due to limited training programs and the stay revealed that need for continuous training programs on disaster management at schools to improve the students and teachers skills in case of any disasters. In addition, the study of **Ostad, Taghizadah, Mowafi & Ardlan. (2016)** that explored the gap between the policy and practice of disaster management in Iranian schools revealed that, improper practices during disasters lead to tragedy during evacuation, which alert the Iranian Minatory of Education to organize regular training programs for school staff and students in safety measures especially fires in schools.

According to the plan of disaster in schools issued by **Cairo Educational Governorate,(2012)** in Egypt, there should be a regular training for disaster teams, which is not done in real situations. This may be related to finical problems and burdens on directors and teachers related to continuous supervision from Minatory of Education regarding curriculum and preparation of teachers.

Current study results revealed that there were students had poor satisfactory knowledge regarding dealing the victims during disaster such as emergency service, evaluation information, classification, and transport with pre-program implementation improved post program. There was statistically significant difference between before and after program implementation. (Table 3). The same results was revealed from the study done by **Kaklauskas, Amaratunge & Haigh, (2016)** who exam the impact of knowledge model for post –disaster management on 430 teachers in United Kingdom and found improving in the knowledge of team in school related to disaster management. This reflects the importance

of continuous educational program in improving their knowledge. The same recommendation was suggested **by Gagliardi et al (2014)** who studied the extent of emergency care knowledge among 112 public school teachers and students in Midwestern states.

The current study observed that highly statistical significant differences between total score of knowledge among students pre & post of health educational program. The present finding was congruent with **Wolner et al (2014)** who studied the effect of implementing disaster intervention program on 83 students in Israeli and found significant differences between knowledge scores among students before and immediately after the disaster intervention program which lead to proper reaction on rockets from Palestinian students,

Also the current finding was agreed with **Wolmer et al (2012)** who described the effect of a universal students-based prevention intervention program on 461 students in six Israeli schools and founded significant differences between knowledge scores among students before and immediately after the preventive intervention program related to disaster. From the researcher point of view, the current results is a normal effect of the educational program on students who didn't receive any educational program.

This finding was also supported by Johnson et al (2014) who examined 35 studied to evaluate the effectiveness of disaster educational programs on students and found a significant relation between students' knowledge score regarding educational program, disaster risks, protective actions and preparedness actions. The current finding disagreed with Grossi, et al (2014) who gave a program to 125 students about disaster in Italy and found no significance in knowledge score before and after the program.

From the researcher point of view, the majority of studies concluded that, programs were very effective on the positive valuable change of students' knowledge and positive outcomes. It is considered an evidence on the importance of students participation in disaster education program and how disaster education programs facilitate students role in disaster preparedness, their self-protective capacities, or their preparation for disaster management as adults. In Egypt, the authoritative personnel in the Ministry of Education should give more consideration for the students and facilitate their sharing in the activities inside schools. The responsible personnel should recognize that the only way for implementing any activities inside school is the active participation of the students.

Regarding practices, the current study indicated a highly statistical significant differences between total scores practice among students before and after applying the disaster educational program, The current finding was supported by **Ingrassia, et al (2014)** who assessed the effect of a disaster management educational program and training initiatives on 3410 school students in European and found improving in the emergency response after disaster management educational program and a highly statistical significant differences between total scores practice related disaster among students before and after the educational program. Also, the present finding agreed with the study done by **Wolmer et al (2012)** who described the effects of a universal students – based preventive intervention program on 46 students in six Israeli schools and found a significant differences between practice scores among students before and immediately after the preventive intervention program related to disaster.

On the same line **Sharon & Andrew, (2015)** in U.S.A. found a highly statistical significant differences between total scores practice among 114 students before and immediately after the emergency educational program and recommended a continuous education for the students in schools. The finding was a normal results due to lack of training program regarding disasters for students. Disaster educational program proved its efficacy in improving students performance. Egyptian students need more consideration where educational curriculum should contain emergency management, also using peer-education proved to be an effective teaching technique in transmitting the contents of the courses to the students.

In the context, the finding showed highly statistical significant differences between total knowledge and practice scores among students before and after applying the disaster educational program. The same results were found by **Abulnour, (2014)** who investigated different routes to a better management of disasters in Egypt and found solutions to the disaster management problems in Egypt by proposing a set of guidelines and recommended considerations to an important disaster management activities. From the researcher point of view, the proper action is a periodic disaster education that respects the nature of Egyptian society.

Relations between total knowledge scores and total practice scores and demographic characteristics of students:

The current study revealed a statistical significant positive correlation between student age, father educational levels and total knowledge scores. The finding contradicted the study done by **Zurlo et al (2014)** who analyzed the impact of disaster management on 863 students in Italy and found a statistical significant correlation between student age, father educational levels and total knowledge scores. While no statistical significant correlation between father educational levels and total practices Theses contradictions may be related to the culture diversity between Egypt and Italy, also it could be related to the sample size and selection,

The current study indicated a statistical significant positive correlation between student age, father educational levels and total practice scores. The finding contradicted the study done by **Liao. (2014)** who examined the effect of a disaster education course on students in Taiwan and found a significant positive correlation between students age, father levels of education and disaster knowledge, practice, and their behavior intention toward disaster, the contradicted could be related to the sample selection where most of the students were females, also no correlation with their age because all of them had the same age.

CONCLUSION:

In conclusionthe majority of the preparatory school students' had good knowledge and practices scores about disastrous risk reduction after educational program. There were a highly statistically significant difference between total knowledge scores and total practice score among preparatory school students before and after educational program in the selected schools.

RECOMMENDATIONS:

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

1- The availability of booklet well oriented disaster team with disaster plan in schools.
2- Apply disaster plan periodically to keep students, school staff and school environment safe.
3- Periodic training programs for all the disaster team in different types of schools on disaster management.
4- Empowering the role of nurses working in schools as a member in disaster team.
5- Further researchers about applying disaster plan in schools on large scale are needed to obtain more generalization of results on all Egyptian schools.

REFERENCES:

1. Abdel-Kareem, MA Elsagheer, (2015). Egyptian, Egyptian Poultry Science Journal 35 (2), 2015.
2. Action Aid International (2019) is an international non-governmental organization whose primary aim is to work .... NDTV.com. Retrieved 2019-06-05. https://en. unesco.org › non-governmental-organizations
3. Adedeji, S. O., Olaniyan, O. (2015). Improving the conditions of teachers and teaching in rural schools across African countries. Addis Ababa, Ethiopia: UNESCO-IICBA.
4. Adegbenro CA (2017) Effect of a school health programme on ensuring safe environments for primary school students. J R SocPromot Health 127: 29-32.
5. Akani NA, Nkanginieme KEO (2017): School health programme In: Paediatric and Child.
6. American Red Cross(2016):"Leaders of the American Red Cross".American Red Cross. Retrieved August 22, 2016.
7. Anderson CL, Creswell WH (2015): School health practice. St Louis: The CV Mosby company pp 1-185.
8. Asiabaka PI, Mbukwem J (2014) School security: How safe is the Nigeria School Environment? Assessment of facility needs , Nigeria.
9. Asian Disaster Reduction Center (2013): The powerful 6.4-magnitude earthquake struck at 23:50 (15:50 GMT) on 6 February 2018 about 20km (12 miles) off the east coast of Taiwan.
10. Blair SN, Cooper KH (2015) Dose of exercise and health benefits. Arch Intern Med 157: 153-154.
11. Centers for Disease Control and Prevention (2016) School health guidelines to prevent unintentional injuries and violence. MMWR Recomm Rep 50: 1-73.
12. Clemenstone S, Mcguire SL, Eigsti DG. (2016): Comprehensive community health nursing- family aggregate and community practice. 6th edn. Mosby publishers. St Louis.
13. de Villiers A, Steyn NP, Draper CE, Fourie JM, Barkhuizen G, et al. (2014): "HealthKick": formative assessment of the health environment in low-resource primary schools in the Western Cape Province of South Africa. BMC Public Health 12: 794.

14. Dey, Balaka, Dr. Singh, R.B. (2016): "Natural hazards and disaster management", Published by central Board of Secondary Education, Delhi; First Edition, 2016, Page No. 1-45.
15. Earthman, G.I. (2014): School Facility Conditions and Student Academic Achievement.Los Angeles: UCLA Institute for Democracy, Education, & Access.
16. Egyptian Ministry of Education(2016). Vision. [Cited 2016, Jan 20th]. Available from: Uhttp://knowledge. moe.gov.eg/arabic/about/vision.htm
17. Ekpo I and Essien-Ibok M. (2015): Effect of environmental variables on macrophyte species community in odot stream, akwa ibom state, Nigeria. Nigerian Journal of Agriculture, Food and Environment. 11(2):178-189. Published June, 2015, NJAFE VOL. 11 No. 2, 2015.
18. Goolsby ED & Kulkarni (2016): Work environment and productivity among primary school teachers in Nigeria. Afr Res Rev 5:367-381.
19. Health Insurance Agency Egypt,(2015). Global Medical Networks Of Over 1 Million Hospital And Clinical Staff.
20. International Council of Nurses' Congress (2016): ICN is recruiting a Chief Executive Officer. Held 27 June-1 July 2016 in Singapore.
21. Jackson S & Sounders R. The clinical nurse specialist's role in school health. Clin Nurse Spec.2017;13 (1):28– 33.
22. Jones SE, Axelrad R, Wattigney WA (2017) Healthy and safe school environment, Part II, Physical school environment: results from the School Health Policies and Programs Study 2006. J Sch Health 77: 544-556.
23. Joseph O, Nwajei SD (2014): Perceived teachers' awareness of safety and disaster prevention measures in schools in Ethiope- East local government, Delta State Nigeria. NigSchlHlth J 16: 55- 62.
24. Klakk H, Chinapaw M, Heidemann M, Andersen LB, Wedderkopp N (2013): Effect of four additional physical education lessons on body composition in students aged 8-13 years--a prospective study during two school years. BMC Pediatr 13: 170.

25. Mahmoud SH, Adamowski J, Alazba AA, El-Gindy AM (2016) Rainwater harvesting for the management of agricultural droughts in arid and semi-arid regions. Paddy Water Environ 14(1):231–246

26. Marilyn LC. (2016): Role of the school nurse. In: Selemank J, ed. School Nursing: A Comprehensive Text. Philadelphia, PA: F. A. Davis;:111– 127.

27. Ministry of Education and Human Resource Development Solomon Islands (2016) Guidelines for Preparing School disaster management Plan Pp 1-44.

28. Mucherah, W., Frazier, A. D. (2016). How teachers perceive their classroom environments and student goal orientation: A look into high school biology classrooms in Kenya. British Journal of Education, Society & Behavioural Science, 3, 1-17.

29. National Policy On Education of the Federal Republic of Nigeria (2014) 4th (edn) Federal Ministry of Education. Abuja, Nigeria NERDC press

30. Neilson CA, and Zimmerman SD. (2014): The effect of school construction on test scores, schoolenrollment, and home prices. Journal of Public Economiques, 120, 18-31.

31. Ofovwe GE, OfiliAN (2017): Knowledge, attitude and practice of school health programme among head teachers of primary schools in Egor Local Government Area of Edo State, Nigeria. Ann Afr Med 6: 99-103.

32. Olaleye FO (2016) Creating a friendly school learning environment for Nigerian students. Euro Sci J 8: 138–147.

33. Oyedeji et al., (2014).The NPK treatment of A. hybridus and A. deflexus had the highest crude fibre to enhance plant health and growth.

34. Park K (2017) School Health Services In: Parks Textbook of Preventive and Social medicine, 19th (edn) M/sBanarsidas Publishers pp. 463 – 466 India

35. Sangowawa AO, Adebiyi AO, Faseru B, Popoola OJ (2016) An observational study of road safety around selected primary schools in Ibadan municipality, Oyo State, Southwestern Nigeria. Ann Afr Med 11: 32-35.

36. Smeltzer & Bare (2019): Textbook of Medical-Surgical Nursing is designed to help nurses prepare for their responsibilities in disaster... November 18, 2016.

37. Stanhope M, Lancaster J. (2016): Community health nursing- process and practice for promoting health. 3rd edn. Mosby year book. St.louis.2015.

38. Taylor C, Lillis C, Lemone P. (2016): Fundamentals of nursing- the art and science of nursing care. 5th edn. Lippincott Williams and Wilkins. London. 2016.

39. The International Red Cross Red Crescent Movement on the Internet". (2013): Who we are. International Federation of Red Cross and Red Crescent Societies. Retrieved 18 November 2013.

40. Theunynck, S. (2016): School Construction Stratégies for Universel Prémery Education in Africa: Should Communities Be Empowered to Build Their Schools? Washington, DC: The World Bank.

41. United Nations Development Programme (UNDP), Disaster Management- Veenema, Tener Goodwin, "Disaster Nursing and Emergency Preparedness", Springer Publishing Company, New York, Second Edition, 2018, Page No. 1-680.

42. United Nations Educational(2019), Scientific and Cultural Organization (UNESCO). The EFA assessment: Country report. [Cited 2019, Jan 5th]. Available from: Uhttp://www.unesco.org/education/wef/ countryreports/egypt/rapport_1.htm

43. United Nations Educational (2019): Scientific and Cultural Organization (UNESCO). The EFA assessment: Country report. [Cited 2019, Jan 5th]. Available from: Uhttp://www.unesco.org/education/wef/ countryreports/egypt/rapport_1.htm

44. United States Agency for International Development (USAID) (2018). Egyptian environmental education and outreach program. Report No. 10. 2018, p.3-4.

45. WHO. Accessed 2015. The Physical School Environment: An Essential Component of a Health-Promoting School. The World Health Organization

46. Wilely G & Ballord M. (2016): The impact of elementary school nurses on student attendance. J Sch Nurs.;19 (4): 218-236.

47. Yeboah, K. (2017). The push and pull factors motivating senior high school teachers in rural areas: A case study in Afigya-Kwabre West District of Ashanti Region, Ghana (Master's thesis). Department of General Art Studies, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana.