

## Effect of Educational Program about Accident Prevention and First Aids on knowledge and practice of Elderly

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### Abstract

Injury among elderly people is usually associated with high morbidity and mortality, and is thus a public health concern. It requires longer hospitalization and more extensive medical attention. This study aims to assess the effect of educational program about accidents prevention and first aids on knowledge and practice of elderly. **Subjects & method:** Quazi-experimental research design was used in this study. The study was carried out at some outpatient clinics at Main Assiut University Hospital on 50 elderly people, were selected through total coverage sample technique. Data were collected using **Structure interview questionnaire** to test elderly's' knowledge about accidents and to assess the reported practices of elderly` about first aid to all types of accident; fracture, bleeding from cutting, burn, electric shock, suffocation, poisoning and drowning. **Results:** more than three quarters (78.0%) of the studied elderly aged (60-<70) years, more than two thirds of studied elderly (68.0 %) was females, while more than three quarters of them (76.0%) was illiterate. The majority of studied elderly (96.0%) had unsatisfactory knowledge about accident before the program implementation, while 72.0% of them had satisfactory knowledge about accident after the program implementation. Regarding to elderly reported practice about first aids it was found that, the majority of (94.0%) of studied elderly had satisfactory practice after the program implementation. **Conclusion:** based on the results of the present study it can be concluded that; there is lack of knowledge among studied elderly regarding accidents and reported practice regarding first aids on pretest, while after the implementation of the educational program the elderly knowledge and reported practice are improved. **Recommendations:** Encourage multidisciplinary researches in the same study in order to cover large sample in different places.

**Key words:** Accident - first aid – elderly, educational program.

### Introduction

The elderly is one of the most vulnerable populations, with the risk of accidents increasing as age advances. Frailty and health problems make the elderly, particularly those over the age of 75, at increased risk of accidents, usually occurring in the home (Rapp, 2014).The

majority of accidents involving older people, both fatal and non-fatal, are falls. The non-falling accidents are not a major problem in the elderly. This may account for why most research amongst elderly people is on falls. Nevertheless, every year around 167 people over the age of 65 in the UK die in fires. The main sources of the fires include cookers, candles, coal fires, heaters and electric blankets. Poor sense of

smell, poor mobility, reduced tolerance of smoke and burns all contribute to mortality. (Gilhooly et al., 2012).

Thirty percent of people aged 65 and older living in the community fall each year. One in 5 of these fall incidents require medical attention. Falls are the leading cause of injury-related deaths for this population. However, no death was recorded from fall in this study (Carol et al., 2008). The first leading cause of deaths among residents 65 years and over were falls followed by suffocation/choking and motor-vehicle occupant-related injuries. The percentage of falls among community-dwelling older adults is increasing from 25% at the age of 70 years to 35% after the age of 75 years (Rodríguez-Molinero 2015).

Home injuries among people aged  $\geq 60$  years were about 8%; falls, poisoning, and choking/suffocation were the most common causes. Compounds, kitchens, and living rooms were the most common locations of home injuries (Lim et al., 2013).

The most important risk factors for falls were: muscle weakness, history of falls, gait deficit, balance deficit, use of assistive devices, visual deficit, arthritis, impaired activities of daily living, depression, cognitive impairment, and age over 80. When growing old, the physical ability of elderly people gradually wanes, making them prone to accidents. It may result in injury, hospitalization, or even loss of self-care ability owing to disability (Bleijlevens et al., 2010).

Common causes of road accidents included speeding, drink, driving not wearing seat belts or careless driving. Around a third involved someone driving during their work. About 10% of those killed were inexperienced drivers (Hepler, 2016). Older people need to take special precautions to ensure a safe living

environment. Most accidents at home can be prevented by the elimination of the hazards (Aras et al., 2012).

First aid is the immediate and temporary help given to a victim of injury or sudden illness until appropriate medical help arrives, or the victim is seen by a healthcare provider (Khater & Mousa, 2012)

The most important thing in first aid is to notice the situation and to call for help. Calling for help is a simple thing to do, but also the most important thing to ensure that the elderly will get professional help. The first hour after the accident is very crucial and if the correct first measures are taken, lives could be saved and disabilities limited (Mahoney, 2008).

Adults over 65 are at increased risk for many types of injuries. Injuries among this age group can have devastating consequences, leading in some cases to disability, loss of independence and even death. (Aras et al., 2012). Accidents could not be completely avoided, but its occurrence could be prevented. For the elderly, effective prevention could much reduce the occurrence of accident, thus alleviating the adverse effect on their physiological and psychological health, and also enhancing their self-care ability, leading to a healthy life (kamel et al., 2013). Older people need to take special precautions to ensure a safe living environment. Most accidents at home can be prevented by the elimination of the hazards. Accident could not be completely avoided, but its occurrence could be prevented. For the elderly, effective prevention could much reduce the occurrence of accident, thus alleviating the adverse effect on their physiological and psychological health, and also enhancing their self-care ability, leading to a healthy life (Aras et al., 2012).

Injury among elderly people is usually associated with high morbidity and mortality, and is thus a public health concern. It requires longer hospitalization and more extensive medical attention, resulting in greater health care burden (Sarofim, 2012). Prevention of accidents can be enhanced by a comprehensive assessment of home situation. Also, nurses in institutional sitting are most concerned about the person's immediate environment, and this requires astute observation and assessment skills by the nurse. Nursing care of the aged is most important. It depends on the knowledge and skills of nurses and their abilities to meet the elderly's needs or give assistance in severe situations and more attention should be paid to the nurses' role in promoting, maintaining and restoring the elderly's health through decreasing the accidents and their complications. (Miller, 2009).

### **Significance of the study**

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Elderly are more susceptible to accidents and injuries than younger adults because when growing old, the physical ability of elderly people gradually wanes, making them prone to accidents. It may result in injury, hospitalization, or even loss of self-care ability owing to disability. Accidents and in particular falls are a major cause of death and disability in older people – the accidental death rate among older people is higher than for other age groups. Many accidental injuries and falls go unreported and statistics usually only cover older people living in private households, therefore excluding those living in residential, nursing and care homes. The main cause of fatal accidents for those aged 65–74 are falls, traffic-related accidents, and fires. Falls are a more important cause of death for those aged 75–84 and are the main cause of accidental death among those aged 85 and over.

### **Aim of the study:**

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To assess the effect of educational program about accident prevention and first aids on knowledge and practice of elderly.

### **Hypothesis of the study:**

1-Implementing educational program will have positive effect on the elderly's knowledge and practices regarding accidents prevention and first aids.

### **Subjects and Method:**

#### **Technical design**

**Research Design:** Quazi-experimental research design was used in this study.

**Setting:** The study was carried out at some outpatient chronic disease clinics at main Assiut University Hospital; it includes diabetic clinic, chest clinic and physiotherapy clinic.

#### **Subjects:**

Convenient sample was used and the study comprised all available elderly attending in the previous mentioned setting. The total number of the sample was 50 elderly.

#### **Study tools:**

**Structure interview questionnaire** contains three parts which developed by researchers to collect the following data:

**Part 1: Demographic data about elderly people:** This includes elderly name, age, gender, education, and working condition.

**Part 2: Assess elderly level of knowledge about accidents:** which include definition, types of accident: each

type includes causes, hazards, and methods of prevention. A scoring system for assessing the elderly's knowledge consisted of 25 questions, each correct answer takes 2 score, incomplete correct answer takes one score, and incorrect answer takes zero score. The total score of elderly knowledge was interpreted as the following: unsatisfactory (less than 50%), satisfactory (50% and more) (**Abozeid, 2010**).

**Part 3:** Assess reported practices of elderly about first aid to all types of accident; fracture, bleeding from cutting, burn, electric shock, suffocation, poisoning and drowning. This part consisted of 9 questions. The scoring system was zero for unsatisfactory response and one for satisfactory response. The grading of elderly according to their reported practice was as the following: unsatisfactory level (less than 60%) and satisfactory level (60% and more). This tool it was done twice pre and immediately post the intervention of the educational program (**Abozeid, 2010**).

## **Method**

### **Operational design**

The study is dividing into three phases:

**I- Preparatory phase:** an official permission and official letter was obtained from the Dean of the Faculty of Nursing, Assiut University directed to the director of the outpatient clinics at Assiut University Hospital to get the permission for data collection and program implementation.

The ethical approval was obtained from the Scientific Research Ethical Committee of faculty of nursing at Assiut University. The purpose and the nature of the study were explained to the participants, and they were informed that they had the right to withdraw from participation and were assured that the results would be used only for the purpose

of the study. The program and tools were developed based on relevant literature and to ensure the validity of this tool, it was checked and revised by a panel of five experts in the community health nursing field. After development of the tools, pilot study was carried out before starting the data collection on 10% elderly from the previous settings, they are included later in the study sample to measure the feasibility and clarity of the tools, and to estimate the time needed for the completion of study tool. An educational program was developed which included the theoretical part based on the relevant literatures and translated into Arabic module which includes definition of accident, causes, risk factors, types, prevention and first aids for each type.

## **II- Intervention phase**

**Teaching place:** the program was conducted in the previous mentioned outpatient clinics.

**Teaching time:** the time of the teaching sessions were decided according to the attendance of the elderly and the coordination between the researchers and elderly (one day per week and the average time to apply and fill the pre and posttest sheet was around 15-20 minutes.

**Teaching methods and materials:** before implementing the educational program the researchers prepared simple teaching methods to be used as lecture and discussion for the theoretical part. In addition to the use of demonstration, colored pictures, and posters for the practical part.

### **The arrangement and conduction of the program:**

The study groups were assessed for their knowledge about accidents & its prevention and also for first aids (pre-test), with the researchers providing of

educational intervention about accidents, its prevention and first aids among elderly and then assessed the effect of educational intervention on elderly knowledge and practice outcome immediately after the program implementation (post-test).

The data were collected starting from March 2016 to the end of May 2016. During interview the researchers introduced themselves to the elderly to explain the purpose and nature of the study. The researchers began to fill the interview sheet and applied the pretest on three to five elderly each day/week. The average time for filling the pretest or pretest sheet was around 15-20 minutes depending on the elderly response. The researchers interviewed with the participants for assessing their knowledge (pretest) and giving handout before the start of the sessions of the program. The theoretical part of the program presented in the second session and the third session for demonstration and re-demonstration of first aid and for the posttest.

## Results

**Table (1): Distribution of studied elderly's according to their demographic data (n=50).**

Demographic data	N.	%
<b>Age (years):</b>		
60- <70	39	78.0
70- <80	10	20.0
>80	1	2.0
Range	60 – 85	
Mean +SD	64.9+6.0	
<b>Gender:</b>		
Male	16	32.0
Female	34	68.0
<b>Education:</b>		
Illiterate or read & write	42	84.0
Preparatory	2	4.0
Secondary	6	12.0
<b>Working condition:</b>		
Worked	6	12.0
Not worked	44	88.0

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**Table 2: Percentage distribution of studied elderly's knowledge about basic information regarding accidents prevention (no.50)**

Basic information	Knowledge				P. value
	Pre		Post		
	No.	%	No.	%	
<b>Meaning of accidents</b>					
Incorrect	15	30.0	0	0.0	0.000**
Incomplete correct	33	66.0	11	22.0	
Complete correct	2	4.0	39	78.0	
<b>Elderly is more susceptible to accidents</b>					
I don't know	6	12.0	0	0.0	0.004**
Yes	31	62.0	44	88.0	
No	13	26.0	6	12.0	
<b>Causes of accidents</b>					
Incorrect	22	44.0	6	12.0	0.000**
Incomplete correct	16	32.0	7	14.0	
Complete correct	12	24.0	37	74.0	
<b>Most common sites of accidents</b>					
Street	37	74.0	28	56.0	0.059
Home	13	26.0	22	44.0	
<b>The most common causes of home accidents</b>					
Incorrect	38	76.0	12	24.0	0.022*
Incomplete correct	11	22.0	29	58.0	
Complete correct	1	2.0	9	18.0	
<b>Types of accidents among elderly</b>					
Incorrect	16	32.0	3	6.0	0.000**
Incomplete correct	18	36.0	13	26.0	
Complete correct	16	32.0	34	68.0	

**Table 3: Percentage distribution of the studied elderly's regarding their total score of knowledge about basic accident information and types of accidents (no.50)**

Items	Knowledge about accident								P. value
	Pre				Post				
	Satisfactory		Unsatisfactory		Satisfactory		Unsatisfactory		
	No.	%	No.	%	No.	%	No.	%	
<b>Basic accident information</b>	8	16.0	42	84.0	26	52.0	24	48.0	<0.001**
<b>Falling</b>	20	40.0	30	60.0	39	78.0	11	22.0	<0.001**
<b>Burn</b>	20	40.0	30	60.0	39	78.0	11	22.0	<0.001**
<b>Electrical shock</b>	4	8.0	46	92.0	36	72.0	14	28.0	<0.001**
<b>Wounds</b>	13	26.0	37	74.0	47	94.0	3	6.0	<0.001**
<b>Poisoning</b>	7	14.0	43	86.0	45	90.0	5	10.0	<0.001**
<b>Suffocation</b>	25	50.0	25	50.0	50	100.0	0	0.0	<0.001**

\*\* Statistically significant difference (p<0.01)

**Table 4: Percentage distribution of the studied elderly's regarding total score of reported practice about first aids (no.50)**

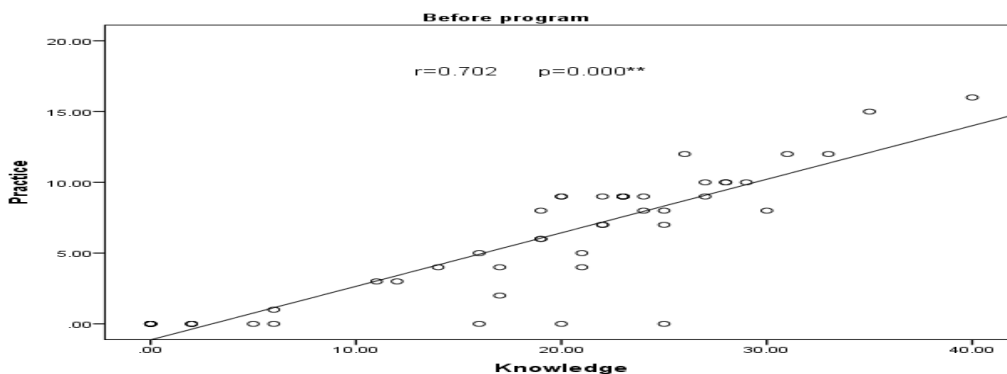
First aids	Reported practice								P. value
	Pre				Post				
	Satisfactory		Unsatisfactory		Satisfactory		Unsatisfactory		
	No.	%	No.	%	No.	%	No.	%	
Fractures	16	32.0	34	68.0	43	86.0	7	14.0	<0.001**
Wounds	16	32.0	34	68.0	43	86.0	7	14.0	<0.001**
Bleeding	14	28.0	36	72.0	38	76.0	12	24.0	<0.001**
Burn	18	36.0	32	64.0	44	88.0	6	12.0	<0.001**
Electrical shock	14	28.0	36	72.0	42	84.0	8	16.0	<0.001**
Suffocation by foreign bodies	12	24.0	38	76.0	44	88.0	6	12.0	<0.001**
Suffocation by gases	18	36.0	32	64.0	42	84.0	8	16.0	<0.001**
Poisoning	17	34.0	33	66.0	40	80.0	10	20.0	<0.001**
Drowning	15	30.0	35	70.0	40	80.0	10	20.0	<0.001**

**Table (5): Relation between total score of knowledge about accident and reported practice of first aids among studied elderly.**

Reported Practice	Knowledge about accident											
	Pre-test (n=50)					P. value	Post-test (n=50)					P. value
	satisfactory		unsatisfactory		satisfactory		unsatisfactory					
	No.	%	No.	%	No.		%	No.	%			
Satisfactory	2	4.0	3	6.0	0.000**	35	70.0	12	24.0	0.000**		
Unsatisfactory	0	0.0	45	90.0		1	2.0	2	4.0			

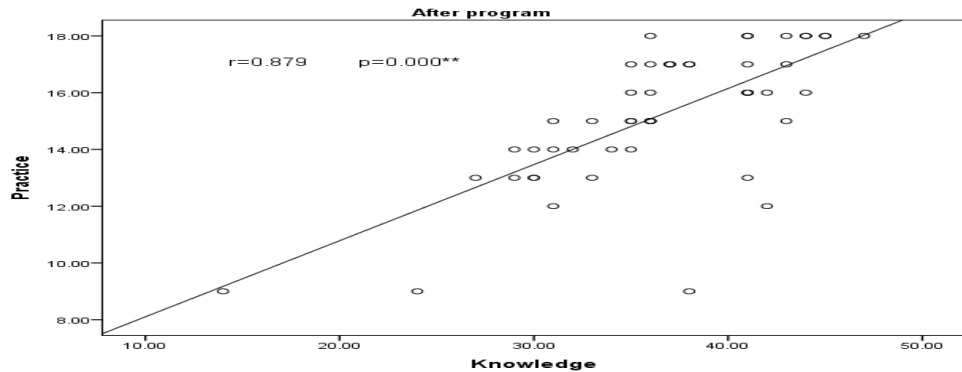
- Chi square test was used

\*\*There is highly significant difference - Significant at P < 0.05



**Fig (1): Correlation between elderly's total scores of knowledge about accident prevention and their reported practice regarding first aids in the pretest.**

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**Fig (2): Correlation between elderly's total scores of knowledge about accident prevention and their reported practice regarding first aids in the post-test.**

**Results:**

**Table 1:** Illustrated that 78.0% of the studied elderly aged 60-<70 years, while 20.0% of them aged 70- <80 years and the mean age was 64.9+ 6.0. Also, 68.0 % were female, while 84.0% of them were illiterate or read & write and 88.0 % were not worked.

**Table 2:** Showed that about 66.0% of the studied elderly defined accidents incompletely correct at pre-program while 78.0% of them defined it correctly at post-program. Regarding elderly knowledge about causes of accidents it was found that about 24% of studied elderly knew correct causes at pre-program while 74.0% of them knew correct causes of accidents at post-program.

**Table 3:** Demonstrated that the most of studied elderly (84.0%) had unsatisfactory knowledge about basic accident information in the pre-test, while 52.0% of them had satisfactory knowledge about basic accident information in the post-test and 92.0% of them had unsatisfactory knowledge about electrical shock in the pre-test, and only 6.0% of them had satisfactory knowledge about wounds in the post-test. There were statistical significance difference between pre-test and post-test regarding to

knowledge of elderly about basic accident information and types of accidents <0.001\*\*.

**Table 4:** Represented that 68.0% of the studied elderly had unsatisfactory reported practices about fractures in the pre-test, compared to 14.0% of them had unsatisfactory reported practices in the post-test and 76.0% of them had unsatisfactory reported practices about suffocation with foreign bodies in the pre-test, compared to 12.0% of them had unsatisfactory reported practices in the post-test. There were statistically significant difference between pre-test and post-test regarding to total score of reported practice about first aids of elderly <0.001\*\*.

**Table 5:** Showed that there is a statistically significant difference between total knowledge about accident among elderly and their reported practice about first aids in pre & post-test (P<0.000\*\*), (P<0.000\*\*) respectively.

**Figure 1:** Demonstrated that there is a positive correlation between total scores of knowledge about accident and their elderly reported practice regarding first aids before the program  $r=0.702$  (P<0.000\*\*).



**Figure 2:** Illustrated that there is a positive correlation between total scores of elderly knowledge about accident and their reported practice regarding first aids after the program  $r=0.879$  ( $P<0.000^{**}$ ).

## Discussion

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Improving knowledge of elderly can help in the prevention of accidents and its negative effect. This can be achieved by provision of continuous education and training to maintain and improve their skills. The aim of this study was to assess the effect of educational program about accidents prevention and first aids on elderly.

The findings of the present study showed that more than three quarters of the studied elderly were in age group 60--<70 years. Also, more than two thirds of them were females, while the majority of them were illiterate or read & write. This finding is contradicts with **Kamel, et al (2013)** who studied risk factors of falls among elderly living in Urban Suez - Egypt and found that more than half of the studied population was in the age group of 60-64 and females represented about two thirds, most of the studied elders were married and almost half of the studied elders were illiterate. Moreover **Laing et al (2011)** who studied fall prevention knowledge, attitude, and practices of community stakeholders and older adults and found that two-thirds of those interviewed were female, most were over the age of 75 and many were either married or widowed.

The current study showed that about three quarters of studied elderly reported that the accidents outside their houses were more common. This may be explained by overcrowded, noises and lack of road safety in the streets. These results are consistent with **Li., et al (2006)** who reported that the largest percentage of elderly mentioned the

accident of falls occurred outside their houses, followed by falling on stairs and in the bathroom. These results were in the same line with **Kamel et al (2013)** who found that more than one third of falls among elderly occurs outside their houses followed by falling on stairs (24%) and in the bathroom (17.5%). Also these results is in the contrast with **Gilhooly et al (2012)** who stated that most accidents happened in the home and women reported more accidents than men.

As regards knowledge of elderly about accident, the current study represented that the majority of elderly had unsatisfactory knowledge about basic accident information such as definition of accident, places of accident and types of accident and electrical shock in the pre-test, while more than half of them had satisfactory knowledge immediately post the program intervention about accidents with a statistically significant differences. This results disagree with **Laing et al (2011)** who found that one third of the study group felt "very knowledgeable" about recommended fall prevention practices and more than half of them perceived themselves to be "somewhat knowledgeable." Two-thirds of the elderly included in the study rated each of the prevention practices as "very important.

As regards elderly reported practice about fractures, the present study revealed that the largest percentage of them had unsatisfactory knowledge of reported practices about fractures and suffocation with foreign bodies in the pre-test, while more than one tenth of them had unsatisfactory knowledge of reported practices in the post-test, with a statistically significant differences.

Furthermore, the current study revealed that about the vast majority of elderly had unsatisfactory knowledge and practice about accident and first aids

before program implementation, compared to less than one quarter of them immediately after the program implementation had unsatisfactory knowledge score about accident prevention, and less than one tenth had unsatisfactory knowledge regarding reported practice of first aids.

This lack of elderly's' knowledge and practice in pretest were due to unsatisfactory awareness regarding to the accidents and the importance of first aid. There is a statistically significant difference between pre and posttest regarding elderly level of knowledge about accident ( $p < 0.001$ ). This may be explained by the teaching methods and materials of this program included colored picture, posters and demonstration and these methods help in enhancing elderly memory.

The current study results revealed that elders` practice concerning the first aids was significantly improved immediately after the program intervention. However, some areas of demonstration showed better improvements than others. Thus, the first aid of suffocation with foreign bodies {chocking,} burn and fracture showed highly improvement immediately after the intervention, compared to first aid of bleeding, poisoning and drowning. This may be attributed to the fact that first aids of fracture and chocking is most occurrences among elderly and they have massive desire to catch more practices regarding this concern.

There was a positive correlation between elder`s total knowledge regarding accident and practices about first aids in pre and post the program intervention. These results could be attributed to that the designed program was successful in upgrading elder's knowledge and practice regarding accident and first aid.

### **Conclusion:**

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Based on the results of the present study it can be concluded that; there is lake of knowledge among studied elderly about accidents and reported practice regarding first aids on pretest, while after the implementation of the educational program the elderly level of knowledge about accidents prevention and practice about first aids were improved.

### **Recommendations:**

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Based on the findings of the present study the following is recommended:

- 1- Encourage multidisciplinary researches in the same study in order to cover large group of elderly in different places.
- 2- The local authority should provide a consultation service for elderly people to provide personalized information on how to improve the environment safety.

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