In collaboration with
BIRMINGHAM CITY University
Karelia
UPO
University of Sunderland
Faculty of Nursing Accredited Faculty

Risk Factors Regarding Fall Among Elderly Clients at Geriatric Homes

Mervat Amin Sayed , Soha Kamel Mesbah, Mohammed Masoud

[1]Lecturer of Community Health Nursing – Fayoum University

[2]Lecturer of Community Health Nursing – Benha University

[3]Lecturer of Public Health, Faculty of Medicine – Fayoum University

Falls are responsible for considerable morbidity, immobility, and mortality among older persons, especially those living in nursing homes. Many different causes and several risk factors that predispose clients to falls have been identified. Multiple risk factors of fall among elderly are considered, including socio-demographic, psychological and medical factors, medication use, and environmental hazards. The study **aims to** assess the risk factors of falls among elderly clients at geriatric homes. **Research design:** A descriptive design was used in carrying out this study. Setting: **The present study was conducted in** ٤ geriatric homes: Dar El-Safa, Dar El-Marwa, Dar Hedia Barakat١ and Dar Hedia Barakat٢. **Sampling:** A purposive sample of ١١٩ clients was chosen randomly. **Tools:** Two tools were designed to collect data. ١) An interviewing questionnaire to assess client's socio-demographic characteristics, intrinsic risk factors, and health status. ٢) An observational checklist to assess their safety environment (extrinsic risk factors). **Results:** The results had shown that there were highly statistically significant differences between vision impairment and drug administration for the studied sample, and their falls. As well, there were highly statistically significant differences between physical state and social state dependency level of the studied sample and their falls. **Conclusion:** Fall was prevalent in older population living in geriatrics homes, especially among dependent ones and those who use drugs. **Recommendations:** Promotion and enhancement of health educational program for fall prevention; to elderly. Written and illustrated instructions about falls, intrinsic and extrinsic risk factors, and prevention of falls to be designed and available at outpatient geriatric clinics, geriatric homes, and to families having elderly people at home.

Keywords: Geriatric, Risk Factors, fall, Dependent.

Introduction

Ageing is the process of becoming older. It represents the accumulation of changes in a human being over time, encompassing physical, psychological, and social change ***(CAPMAS, ٢٠١٥)***. Geriatrics is a term which refers to taking care on older population. Worldwide, people aged more than ٦٥ years is called an elderly; however in Egypt the old age is considered to begin after ٦٠ ***(Mostafa, ٢٠١٣).***

Fall can be defined as a sudden, unintentional change in position causing an individual to land at a lower level, on an object, the floor, or the ground, other than as a consequence of sudden onset of paralysis, epileptic seizure, or overwhelming external force. Although accidental falls in the elderly have been the subject of extensive research during the past ٢٠ years, it is still a major health problem in a rapidly ageing global population. Falls are responsible for two-thirds of the fatalities resulting from unintentional injuries. Approximately ٢٠٪ of accidental falls require medical attention, and ٥٪ results in a fracture or other serious injuries ***(Stevens et al., ٢٠١٢).***

The risk indicators examined include demographic factors, neuromuscular function, disease and fall history, psychological impairments, types and numbers of medications, the physical environment, functional disabilities, and social handicaps. Gait disturbance and muscle weakness also are common causes. Dizziness, vertigo, drop attacks, postural hypotension, visual impairment, and syncope also are known to cause falls. The incidence of falls rises with age and the worsening of general fitness. Regardless of the reasons, falls in advanced age have serious physical, mental, and socio-economic consequences. Falls usually result from the interaction and interference of factors categorized in four domains: physical, psychological, socio-economic and environmental factors **(Bartley and Shiflett, ٢٠١٠).**

History of fall and gait or balance deficits increases the risk threefold. Other high-risk situations that can cause or contribute to falls are use of an assistive device, visual deficit, and arthritis, impaired activities of daily living, depression, cognitive impairment, and age older than ٨٠ years ***(Lakatos et al., ٢٠٠٩).***

Use of four or more medications has been strongly associated with an increased risk of falls. In particular, the usage of psychotropic medications, cardiac drugs including class ١ A antiarrhythmic agents, digoxin, diuretics, and anticonvulsants have been implicated in increasing the risk of falls **(Lindus, ٢٠١٢).**

Extrinsic risk factors that describe the size of the impact environmental factors have on the risk of falling among older people is uncertain. Older people often have problems slipping or tripping, lacking good balance or righting mechanisms for preventing the falls. Extrinsic risks include: environmental hazards, footwear and clothing, and inappropriate walking aids or assistive devices. Environmental hazards are the leading cause of falls, accounting for about ٢٥ to ٤٥ percent in most studies **(Avendano et al., ٢٠٠٩).**

The nurse has an important role in evaluating and educating patients, caregivers, and co-workers on strategies to reduce fall accidents. Individualized interventions can be planned when the nurse has direct contact with the clients and their caregivers during routine doctor visits. Encouraging home assessments can find hazards in the home, environmental and behavioral, to be identified and corrected with appropriate referral and advice. The nurse can also educate co-workers about certain factors that contribute to a client's risk of falls while staying in a healthcare setting **(Center for Disease Control and Prevention, ٢٠١٥)**

Significance of the study

In ٢٠١٠, an estimated ٥٢٤ million people were aged ٦٥ or older representing ٨ percent of the world's population. By ٢٠٥٠, this number is expected to nearly triple to about ١.٥ billion, representing ١٦ percent of the world's population. This group approximately constitutes ٦.٠٪ of the Egyptian population according to the last Egyptian census conducted in ٢٠٠٦ with a life expectancy of ٦٩ and ٧٤ years for males and females respectively **(WHO, ٢٠١٢).** In Egypt, the percentage of elder people in ١٩٩٦ was around ٦٪ and in ٢٠٠٦ was ٧.٢٪, while the expected percentage will be ٨.٩٪ and ١٠.٩٪ in, ٢٠١٦ and ٢٠٢٦ respectively. Consequently, the number of geriatric homes increased to reach ١٧٦ geriatric homes in ٢٠١٥ in Egypt, ٣٨ of them in east Cairo **(CAPMAS, ٢٠١٣).**

Fall and injury rates may be decreased by effective preventive programs of fall reduction. The procedure must include identification and assessment of all cases of falls, steps taken to lower their incidence and monitoring of the program effectiveness. Fall prevention programs frequently include health education and health promotion materials about reducing fall hazards **(Chatterji et al., ٢٠٠٨).**

Aim of the Study

This study aimed to assess the risk factors of falls among elderly clients at geriatric homes, through:

- Assessing the intrinsic factors leading to falls.
- Assessing the environment as an extrinsic factor.

Research questions

- Is there a relation between socio-demographic characteristics of elderly and falling?
- Is the health status of elderly clients affecting their risk for fall?
- Are the extrinsic factors, as environment, affecting falling of elderly?

Subjects and Methods

Research design:

A descriptive design was used in carrying out this study.

Setting:

The present study was conducted in four geriatric homes. The total number of geriatric homes is ٣٨ in East-Cairo, ١٠٪ of this number (about ٤ geriatric homes) were chosen by simple random sample. These were Dar El-Safa, Dar El-Marwa, Dar Hedia Barakat ١ and Dar Hedia Barakat ٢. These homes serve many areas.

Sampling:

A purposive sample from the ٤ Geriatric homes was recruited for the study. It included ١١٩ clients chosen randomly from total number of clients

Tools of data collection:

Two tools were utilized for data collection

First Tool: An Interview Questionnaire: developed by the researchers based on literature review and written in simple clear Arabic language it consisted of three parts as the following:

Part I: It was designed to collect data about the socio-demographic characteristics of clients. It included questions about age, sex, marital status, occupation, educational level etc.

Part II: It was designed to assess intrinsic risk factors. This tool dealt with medical history for elderly clients. It included questions about associated chronic diseases, vision problems, movement limitation, and drug administration.

Part III: It was devoted to assess the health status of clients; it consisted of three parts as the following: A. Physical well-being: it dealt with ability to wear clothes, having shower, to go to bath room, using medication to sleep, and also included house chores; as the ability to clean house, to prepare meals, wash dishes, ability to go to the market for shopping, and ability to carry heavy things. It consisted of ١٢ questions answered by “Dependent” took zero score “Partially Dependent “took one score and “Independent“ took two score. The total score of Physical well-being was ٢٤ grades evaluated as follows:

- Score less than ٥٠٪ was considered poor physical state.
- Score equal or more than ٥٠ was considered good physical state.

B. Social well-being: such as practicing sport, practicing hobby, visiting friends, and participating in public events such as wedding, death, visiting patients). It consisted of ٤ questions answered by “Always” took two score; “sometimes” took one score and “Never” took zero score. The total score of social well-being was ٨ grades evaluated as following:

- Score less than ٥٠٪ was considered poor social state.
- Score equal or more than ٥٠ was considered good social state.

C. Psychological well-being: It included questions about reading books, listening to health pro-grams, speaking with people around him or her, feeling worry from falls, feeling scared, caring of his appearance, caring of his general health and taking any medications without a prescription. It consists of ٨ questions answered by “Always” took two score;“ sometimes ”took one score and “Never ”took zero score. The total score of psychological well-being was ١٦ grades evaluated as follows:

- Score less than ٥٠٪ was considered poor psychological state.
- Score equal or more than ٥٠ was considered good psychological state.

Scoring system

The total score of the questionnaire was ٤٨ grades evaluated as follows:

- Score less than ٥٠٪ was considered dependent.
- Score equal or more than ٥٠ was considered independent

Second Tool: An observational checklist: to assess safety environment through asking questions as extrinsic risk factors. This tool (٤٧ items) was prepared by the researchers to assess safety home environment of elderly clients. It included bed room: beds, walls, floor, furniture, illumination, stairs and latrines.

Scoring system

The total score of the checklist was ٤٧ grades, each item checked as "Yes" took one score, and the item checked as "No" took zero.

- Score less than ٩٠٪ was considered unsafe.
- Score equal or more than ٩٠ was considered safe.

Validity and reliability

Content validity test: The study tools were translated by the researchers to Arabic language and tested for their content validity by a group of five of experts from the staff of Community Health Nursing. The required modifications were carried out accordingly.

Reliability test: Test–retest reliability was applied for testing the internal consistency of the tools. It refers to the administration to the same tool to the same subject scores from reported testing were ٠.٨٩. The tools proved to be strongly reliable.

Pilot study

It was conducted on ١٠٪ of the sample (١٢) older adult to check simplicity, clarity, applicability and time needed to fill in the tool. Those who shared in pilot study were excluded from the main study sample. Based on the results of the pilot study, the necessary corrections and modifications were carried out.

Ethical consideration

The older adults were informed that participation in the study is voluntary i.e. to accept or refuse as this right is secured and that they have also the right to withdraw from the study at any time without giving any reason. They were also assured that the study will be harmless and that privacy and confidentiality of all records and personal information will be ensured

Field work

– Designing and constructing the study tools were based on reviewing current and past, local and international related literature about various aspects of fall by using books and computer search.

– The baseline assessment for all participants was carried out. Data were collected over the period between May ٢٠١٥ and October ٢٠١٥.

– The researchers visited each geriatric home three times a week (Saturdays, Mondays and Tuesdays) for six months from ٩.٠٠ a.m. to ١٢.٠٠ mid-day.

Statistical Analysis:

Data were collected, coded, double entered and analyzed using the statistical package for social science (SPSS) software, version ٢٠ under windows ٧. Categorical data were analyzed by computing numbers and percentages. Differences were tested statistically by applying chi square or fisher exact tests when appropriate for comparisons between groups, and p-value of <٠.٠٥ was considered statistically significant. Multiple logistic regressions were obtained as a multivariate analysis to show factors associated with fall.

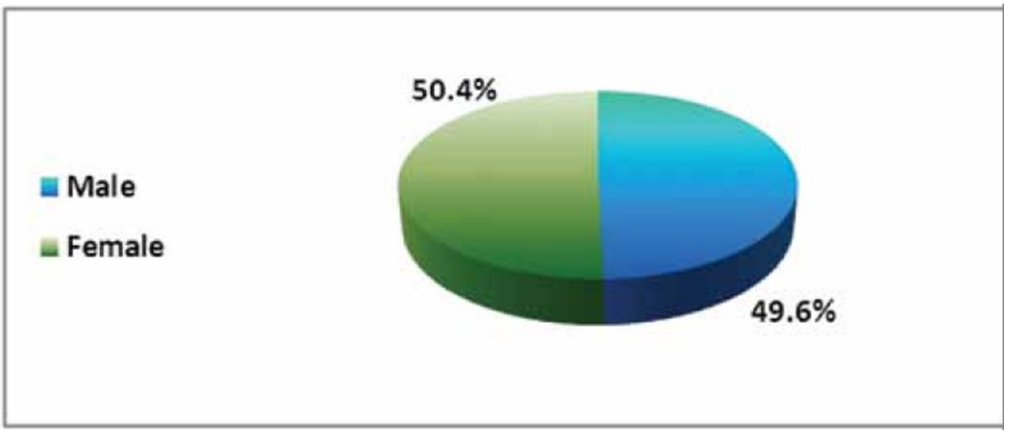
Results

Table (١): Number and percentage distribution of the studied sample according to their socio-demographic characteristics (n= ١١٩)

Variables	No.	%
Age:		
Less than 70	81	68.1
70 and above	38	31.9
Educational level:		
Illiterate	13	10.9
Read and write	25	21.0
Primary school	41	34.5
Secondary school	28	23.5
University	12	10.1
Previous Occupation:		
Not working	62	52.1
Employee	50	42.0
Private work	7	5.9

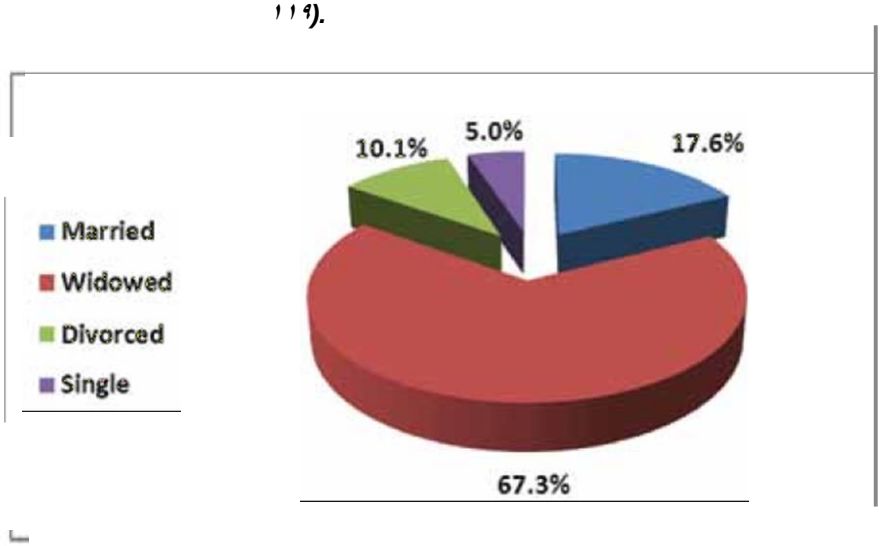
Table (١) shows the socio-demographic characteristics. It reveals that, ٦٨.١٪ were less than ٧٠ years old, while ٣١.٩٪ were ٧٠ years old and above, ٣٤.٥٪ were received primary education and ٤٢.٠٪ were employees.

Figure (١): Number and percentage distribution of the studied sample according to their gender (n= ١١٩)



In relation to gender, the above figure reveals that, ٥٠.٤٪ were females, while ٤٩.٦٪ were males.

Figure (٢): Number and percentage distribution of the studied sample according to their marital status (n= ١١٩).



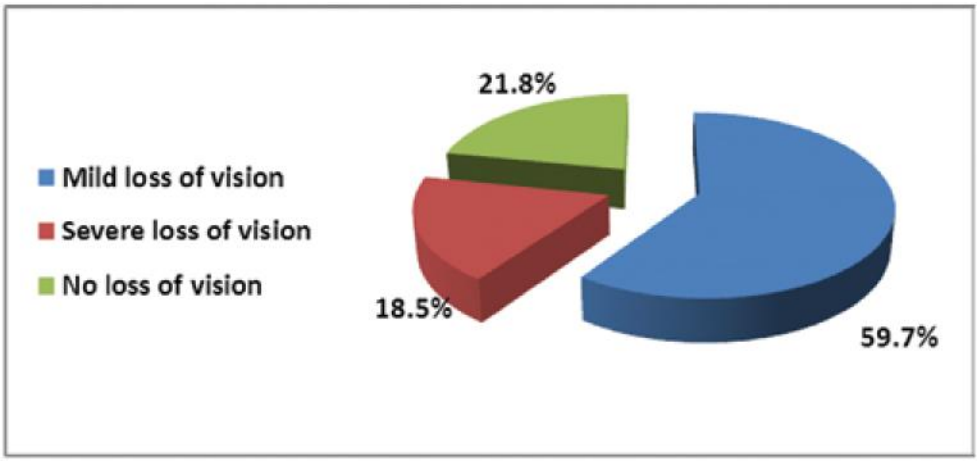
As regards marital status the above figure reveals that, ١٧.٦٪ of the studied sample was married, ٦٧.٣٪ widowed, ١٠.١٪ divorced and ٥.٠٪ singles.

Table (٢): Number and percentage distribution of the studied sample according to their common health problems(n= ١١٩)

Variables	No.	%
Chronic diseases		
Hypertension	117	98.3
Arthritis	105	88.2
Diabetes mellitus	91	76.5
Coronary heart diseases	49	41.2
Osteoporosis	39	32.8
Cataract	21	17.6
Cerebrovascular stroke	18	15.1
Parkinsonism	15	12.6
Alzheimer	9	7.6
Drugs		
No	51	42.9
Hypnotics	59	49.6
Antidepressant	21	17.6
Antipsychotic	10	8.4

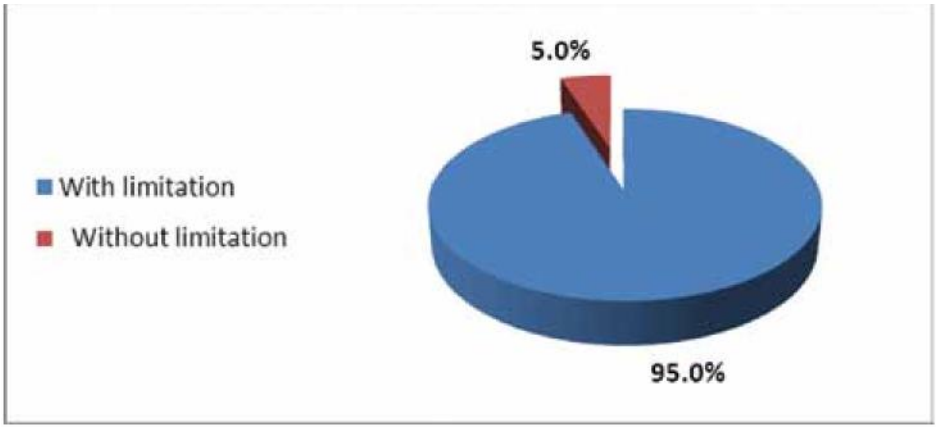
Table (٢) clarifies that, ٩٨.٣٪, ٨٨.٢٪ and ٧٦.٥٪ of studied sample were suffering from hypertension, arthritis and diabetes mellitus respectively. Hypnotics were the most common reported drug used.

Figure (٣): Number and percentage distribution of the studied sample according to their vision status (n= ١١٩).



As regards vision status of the studied sample, the above figure reveals that, ٥٩.٧٪ and ١٨.٥٪ of studied sample had mild and sever loss of vision respectively.

Figure (٤): Number and percentage distribution of the studied sample according to their limitation of movement of (n= ١١٩).



In relation to limitation of movement, the above figure reveals that, ٩٥.٠٪ of studied sample had movement limitation, while ٥.٠٪ of them without limitation.

Table (٣): Number and percentage distribution of the studied sample according to their history of fall (n= ١١٩)

Variables	No.	%
History of fall		
No history of fall	61	51.3
One time	35	29.4
Two times & more	23	19.3

In relation to prevalence of falls during the past ١٢ months among the study population, ٥١.٣٪ had no history of fall, while ٢٩.٤٪ and ١٩.٣٪ reported one time, and two times falls or more during the year.

According to the research question (١): *Is there a relation between socio-demo graphic characteristics of elderly and falling?*

Table (٤): Relation between socio-demographic characteristics of the studied sample and their fall

Variables	Fall		No Fall		P-value
	No.	%	No.	%	
Age					
Less than 70	34	42.0	47	58.0	0.05
70 and more	24	63.2	14	36.8	
Gender					
Male	35	59.3	24	40.7	***0.04**
Female	23	38.3	37	61.7	
Marital status					
Married	12	57.1	9	42.9	0.54
Not married	46	46.9	52	53.1	
Education					
Less than high school	40	50.6	39	49.4	0.69
High school and more	18	45.0	22	55.0	
Previous occupation					
Working	33	57.9	24	42.1	0.08
Not working	25	40.3	37	59.7	

**P <0.05 is considered significant.*

Table (٤) shows a statistically significant relation between gender of the studied sample and their fall at p < ٠. ٠٥. Also this table shows statistically insignificant differences between age, marital status, level of education and previous occupation of the studied sample, and their fall (p >٠. ٠٥).

Table (٥): Relation between medical history of the studied sample and their fall

Variables	Fall		No Fall		P-value
	No.	%	No.	%	
Chronic diseases					
One or two diseases	6	30.0	14	70.0	0.11
More than two	52	52.5	47	47.5	
Vision impairment					
Vision impairment	52	55.9	41	44.1	*0.01
No vision impairment	6	23.1	20	76.9	
Movement limitation					
With limitation	55	48.7	58	51.3	0.81
Without limitation	3	50.0	5	50.0	
Drug administration					
Administrating drugs	46	67.6	22	32.4	*0.0001
Not administrating drugs	12	23.5	39	76.5	

**P < 0.01 is considered highly significant.*

Table (٥) reveals highly statistically significant differences between vision impairment and drug administration for the studied sample, and their fall at p < ٠. ٠١. Also this table shows statistically insignificant difference between history of chronic diseases and movement limitation of the studied sample, and their fall (p >٠. ٠٥).

According to research question (٢): *Is the health status of elderly clients affecting their risk for fall?*

Table (٦): Relation between physical, social wellbeing level, psychological, and dependency level of the studied sample and their fall

Variables	Fall		No Fall		P-value
	No.	%	No.	%	
Physical state					
Good	10	23.8	32	76.2	*0.0001
Poor	48	62.3	29	37.7	
Social state					
Good	42	42.9	56	57.1	*0.01
Poor	16	76.2	5	23.8	
Psychological state					
Good	44	44.9	54	55.1	0.12
Poor	14	66.7	7	33.3	
Dependency level					
Dependent	45	65.2	24	34.8	*0.0001
Independent	13	26.0	37	74.0	

***P < 0.01 is considered highly significant.*

Table (٦) reveals highly statistically significant differences between physical state, social state and dependency level of the studied sample, and their fall at p < ٠.٠٠١. Also, this table shows a statistically insignificant difference between psychological state of the studied sample and their fall (p >٠. ٠٥).).

According to research question (٣): *Are the extrinsic factors, as environment, affecting falling of elderly?*

Table (٧): Relation between environment condition of the studied sample and their fall

Variables	Fall		No Fall		P-value
	No.	%	No.	%	
Environmental condition					
Safe	50	45.5	60	54.5	*0.03
Unsafe	8	88.9	1	11.1	
Bedroom					
Safe	51	46.4	59	53.6	0.14
Unsafe	7	77.8	2	22.2	
Walking aid					
Safe	51	45.9	60	54.1	0.06
Unsafe	7	87.5	1	12.5	
Latrine					
Safe	43	46.7	49	53.3	0.56
Unsafe	15	55.6	12	44.4	
Design (floor & illumination)					
Safe	55	48.2	59	51.8	0.95
Unsafe	3	60.0	2	40.0	

*P <0.05 is considered significant

Table (٧) reveals a highly statistically significant difference between environmental condition and fall at p < ٠. ٠٥. Also this table shows statistically insignificant differences between bed room, walking aid, latrine and design (floor & illumination), and fall (p >٠. ٠٥).

Table (٨): Multiple Logistic Regressions showed factors associated with fall among the study participants

Factors	P-value	Adjusted OR (95 % CI)
Fall		
Dependency (dependent vs independent)	*0.003	3.9 (1.6-9.5)
Drug administration (Yes vs No)	*0.001	4.6 (1.9-11.1)

* P < 0.01 is considered highly significant.

Table (٨) reveals multivariate logistic regression analysis which determined that there was about four fold risk of having fall when the elder being dependent and use drugs at P<٠.٠ ١.

Discussion

Older people frequently fall as over ٣٠٪ of older persons fall each year (Schefer et al., ٢٠٠٨). Multiple risk factors of fall among elderly are considered, including personal risk factors such as socio-demographic, psychological and medical factors, medication use, and environmental hazards (Deandrea et al., ٢٠١٠; Kamel et al., ٢٠١٣).

According to elderly characteristics, the results of this study showed that slightly more than two thirds were less than ٧٠ years old, more than one third received primary school education and more than two fifths were employees (Table ١). This finding was in the same line with Wallace et al. (٢٠٠٢), who reported that the average age of studied population is ٦٢ years and about one third of studied sample received primary school. However, this finding contradicted with Hestekin et al. (٢٠١٣), who found that about ٢٥.٣ of participant had primary school education.

As regards gender about half of the studied sample was female (Fig ١). This finding was in agreement with Hestekin et al. (٢٠١٣), who revealed that ٥١.٢٪ of studied sample were female. This finding is incongruent with Fabre (٢٠٠٩) who reported that ٧٥.٩٪ of participants were male. Also, this finding is contradicting with Wallace et al. (٢٠٠٢), who detected that ٧٧٪ of participants were male while ٢٣٪ were female.

In relation to marital status, more than two thirds were widowed (Fig ٢). This finding was inconsistent with Hestekin et al. (٢٠١٣), who reported that ١٨.٥٪ of studied sample were widowed or divorced.

The present study findings revealed that, relatively high percentages representing most of elderly suffered from hypertension and the majority from arthritis and diabetes mellitus (Table ٢). These findings were consistent with Sibley et al. (٢٠١٤), who found that ٥٠.٢٪ and ٤٣.٤٪ suffered from hypertension and arthritis respectively.

Considering to vision status, almost three fifths had mild loss of vision (Fig ٣). This finding was supported by the American Foundation of Blind (٢٠١٥), which stated that the risk of low vision and blindness increases significantly with age, particularly in those over age ٦٥.

In relation to limitation of movement, most of elderly had no limitation of movement (Fig٤). This finding was inconsistent with Iezzoni et al. (٢٠٠١), who stated that mobility problems are most common among older adults, although people of any age can experience difficulties in mobility.

As regards history of falls during the past ١٢ months, about half of elderly had no history of fall (Table ٣). This finding confirmed with Kamel et al. (٢٠١٣), who found that ٦٠.٣٪ of participants had fall during the past ١٢ months.
According to the results of this study, there was a highly statistically significant relation between gender of the studied sample and their falls (Table ٤). This finding contradicted with Fabre (٢٠٠٩), who found no significant difference in total fall risk score based on gender (t [٢٧٦] = .١٤, p = .٨٩٣). As well, this finding is inconsistent with Kamel et al. (٢٠١٣), who stated that there were no significant differences in fall risk based on gender (p= ٠.٧٥٣٥).

This study finding revealed statistically significant relations between gender of the studied sample and their fall. This result was in contrast with other studies carried out among community-dwelling elderly as that of Kamel et al. (٢٠١٣), who studied risk factors of falls among elderly living in Urban Suez, Egypt, and that of Abdulmajeed et al. (٢٠٠٨) who studied prevalence and risk factors for falls among elderly in primary health care centers in Qatar. This may be referred to the difference between community-living elderly and those attending geriatrics homes as regards physical and psychological health and also environmental circumstances.

Table (٤) also shows statistically insignificant relations as regards age, marital status, level of education, of the studied sample and their falls (Table ٤). These findings are supported by Kamel et al. (٢٠١٣), who found that there was a significant difference in fall risk based on gender (p= ٠.٠٠٥). As well, this finding is supported by Hanlon et al. (٢٠٠٢), specifically, these researchers reported that lower educational level was significantly associated with a high risk for falls, and that greater education was associated with a decreased falls risk. Thus, the socio demographic variable of educational level is an important factor to measure when attempting to identify older adults at risk for falls. Additionally, Reyes-Ortiz (٢٠٠٤) revealed that subjects living alone have an increased risk of falling of about ٢٠-٣٠٪, while Abdulmajeed et al. (٢٠٠٨) found no significant relation between living alone and falls.

The current findings revealed highly statistically significant difference between vision impairment and fall (Table ٥). This result is consistent with an observational longitudinal study conducted by in Egypt among elderly patients admitted to the internal medicine departments at Ain Shams University Hospital, and found that visual impairment was associated with falls Al Tehewy et al. (٢٠١٤) who studied the rate and predictors of falls among elderly patients in a university hospital. .

There was also a significant association between falls and medication use (Table ٥ & ٨). This finding was in accordance with Kamel et al. (٢٠١٣) who studied risk factors of falls among elderly living in Urban Suez City in Egypt. This finding can be explained as medications may affect alertness and coordination.

This research finding also showed that physical health and state of dependency were significantly associated with falls, as dependent elderly, who could not do physical activities alone have fallen more than those who were physically active (Table ٦ & ٨). Similar results were detected by Abdulmajeed et al. (٢٠٠٨) and Kamel et al. (٢٠١٣) in which falls were also reported more among dependent than independent elderly. This finding explores the important role of nursing in prevention of fall among those particular groups.

Additional significant association was demonstrated between unsafe environment and falls among the study population (table ٧). Similar results were revealed by Lord et al. (٢٠٠٦) who studied home environment risk factors for falls in older people and the efficacy of home modifications and showed that elderly who had one or more environmental hazards in their homes were more likely to have reported falling. Home hazard reduction is efective if implemented to older people with a history of falls and mobility limitations.

Conclusion:

In the light of the study findings, it might be concluded that:

Fall was prevalent among older population living in geriatrics homes, especially among dependent ones and those who use drugs. There were highly statistically significant relations between vision impairment, drug administration for the studied sample and their falls. As well, there were highly statistically significant difference between physical state, social state dependency level of the studied sample and their falls. There additional significant association was demonstrated between unsafe environment and falls among the study population.

Recommendations:

Based on the results and conclusion of the current study, the following recommendations are suggested:

– Promotion and enhancement of health educational programs for fall prevention to be presented to elderly. Written and illustrated instructions about falls, intrinsic and extrinsic risk factors, and prevention of falls to be designed and available at outpatient geriatric clinics, geriatric homes and families having elderly people at home.

– More studies in this field are urgently needed with large probability sample from different geographical areas to allow greater representation and generalization of the results.

References:

Abdulmajeed, A., Almawlawi, E. & Alansari, A. (٢٠٠٨): Prevalence and risk factors for fals among elderly in primary health care centers in Qatar. Suez Canal Univers ity Medical Journal; ٣٣: ٩٢–٩٥.

Al Tehewy, M., Amin, E. and Nassar, W. (٢٠١٤): A Study of Rate and Predictors of Fal Among Elderly Patients in a University Hospital. J Patient Safety; ٥(٣): ١٣-١٩. American Foundation of blind (٢٠١٥): Special Report on Aging and Vision Loss. Available @ http://www.afb.org/info/blindness-statistics/special-report-on-aging-and-vision-loss/٢٥. Accessed on ١٠/١١/٢٠١٥.

Austin, N., Amanda Devine, A., Dick, L., Prince, R. & Bruce, D. (٢٠٠٧): Fear of falling in older women: a longitudinal study of incidence, persistence, and predictors. J Am Geriatr Soc.; ٥٥: ١٥٩٨-١٦٠٣.

Avendano, M., Glymour, M.M., Banks, J. & Mackenbach, J.P. (٢٠٠٩): Health disadvantage in US adults aged ٥٠ to ٧٤ years: A comparison of the health of rich and poor Americans with that of Europeans. Americanisk Journal of Public Health; ٩٩(٣): ٥٤٠-٥٤٨.

Bartley, M.K. & Shiflett, L.A. (٢٠١٠): Handle older trauma patients with care. Nursing.; ٤٠ (٨) : ٢٤-٢٩.

CAPMAS, (٢٠١٣): Proportion of elderly, Available @ http:// www. sis. gov. eg/ En/ Templates/ Articles/ tmp Article News. aspx? ArtID= ٧٠٣٦٩#.VnFoYF٥DGKE Accessed on ١٥/١٢/٢٠١٤.

CAPMAS. (٢٠١٥): Central Agency for Public Mobilization and Statistics (٢٠١٥): Egypt in Figures. Available online at: http://www.capmas.gov.eg/pdf/Egyptin Figures ٢٠١٥/EgyptinFigures/Tables/PDF/١٪٢٠٪D٨٪A٧٪D٩٪٨٤٪D٨٪B٣٪D٩٪٨٣٪D٨٪A٧٪D٩٪٨٦/pop.

Centers for Disease Control and Prevention, (٢٠١٥): Falls in Nursing Homes. Available @ http:// www. cdc.gov /homeandrecreationalsafety/ fals/ nursing. html Accessed on ١٥/١٢/٢٠ ١٤.

Chatterji, S., Kowal, P., Mathers, C., Naidoo, N., Verdes, E., Smith, J.P. & Suzman, R. (٢٠٠٨): The health of aging populations in China and India. Health Afairs; ٢٧(٤): ١٠٥٢- ١٠٦٣.

Deandrea, S., Lucenteforte, E., Bravi, F., Foschi, R., La, V.C. & Negri, E. (٢٠١٠): Risk factors for fals in community-dweling older people: A systematic review and meta-analysis. Epidemiology; ٢ ١(٥): ٦٥٨–٦٨.

Fabre, J. (٢٠٠٩): Identification of Fals Risk Factors in Community-Dweling Older Adults: Validation of the Comprehensive Falls Risk S creening Instrument. Doctor-ate thesis, Faculty of Louisiana State University

Fletcher, P.C. & Hirdes, J.P. (٢٠٠٤): Restriction in activity associated with fear of faling among community-based seniors using home care services. Age and Ageing; ٣٣: ٢٧٣–٢ ٧٩.

Hanlon, J., Landerman, L., Fillenbaum, G., & Studenski, S. (٢٠٠٢): Falls in African American and White Community-Dweling Elderly Resident. The Journals of Gerontology: Series A, Jul; ٥٧(٧):M ٤٧٣–٨.

Hestekin, H., Driscol, T., Wiliams, J., Kowal, P., Peltzer, K. & Chatterhi, S. (٢٠١٣): Measuring pre valence and risk facto rs for fal-related injury in older adults in low-and middle-income countries: Results from the WHO Study on Global Ageing and Adult Health (SAGE). SAGE Working Paper No. ٦, July, ٢٠١٣.

Kamel, M.H., A bdulmajeed, A.A. and Ismail, S.E. (٢٠١٣): Risk factors of falls among elderly living in Urban Suez - Egypt. The Pan African Medical Journal; ١٤: ٢٦. doi: ١٠. ١ ١٦٠٤/pamj. ٢٠١٣. ١٤. ٢٦. ١٦٠٩.

Lakatos, B.E., Capasso, V., Mitchel, M.T., Kilroy, S.M., Lussier-Cushing, M., Summer, L., Repper-Delisi, J., Kelleher, E.P., Delisle, L.A., Cruz, C. & Stern, T.A. (٢٠٠٩): Fals in the general hospital: association with delirium, advanced age, and specific surgical procedures. Psychosomatics; ٥٠(٣): ٢ ١٨-٢٢٦.

Lezzoni, L., McCarthy, E., Davis, R. & Siebens, H. (٢٠٠ ١): Mobility dificulties are not only a pro blem of old age. Journal of General Internal Medicine; ١٦(٤): ٢٣٥-٢٤٢. Lindus, L. (٢٠١٣): Preventing falls in older people. Nursing Standard.; ٢٦(٢٠): ٥٩.

Lord, S.R., Menz, H.B. & Sherrington, C. (٢٠٠٦): Home en vi ronment risk factors for fals in older people and the eficacy of home modifications. A ge Ageing; ٣٥ Suppl ٢:ii ٥٥-ii ٥٩.

Mostafa, M.H. (٢٠١٣): The old people in Egypt, Case Study (Ismailia Governorate) Central Agency for Public Mobilization and Statistics, Cairo, Egypt; Available online at: http://cash ٦.org/t/the-old-people-in-egypt-case-study-ismailia-governorate-w ١٤٠٧٤.

Reyes-Ortiz, C., Al Snih, S., Loera, J., Ray, L., & Markides, K. (٢٠٠٤): Risk factors for faling in older Mexican Americans. Ethn Dis. ٢٠٠٤ Summer; ١٤(٣): ٤١٧–٢٢. Schefer, A.C., Schuuraman, M.J., Dijk, N.V., DeerHoof, T.V. & DeRooij, S.E. (٢٠٠٨): Fear of faling: Measurement strategy, prevalence, risk factors and consequences among older persons. Age and Ageing; ٣٧: ١٩–٢٤.

Sibley , K., Voth , J., Munce, S., Straus, S & Jaglal, S. (٢٠١٤): Chronic disease and fals in community-dweling Canadians over ٦٥ years old: a population-based study exploring associations with number and pattern of chronic conditions. Available @ http://www.biomedcentral.com/١٤٧١-٢٣ ١٨/١٤/٢٢ Accessed on ١١/١١/٢٠١٤. Stevens, J.A., Balesteros, M.F., Mack, K.A., Rudd, R.A., DeCaro, E. & Adler, G. (٢٠١٢): Gender diferences in seeking care for fals in the aged Medicare Population. American Journal of Preventive Medicine; ٤٣: ٥٩–٦٢.

Walace, C., Reiber, G., LeMaster, J. & Smith, D. (٢٠٠٢): Incidence of fals, risk factors for fals, and fal-related fractures in individuals with diabetes and a prior foot ulcer. Diabetes Care November; ٢٥(١١): ١٩٨٣-١٩٨٦.

World Health Organization, WHO (٢٠١٢): Countries, Egypt, statistics, Available online at: http://www.who.int/countries/egy/en.